The <u>Journal</u> of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 118, No. 13

COPYRIGHT, 1942, BY AMERICAN MEDICAL ASSOCIATION
CHICAGO, ILLINOIS

March 28, 1942

THE FUNCTION OF THE STATE HOS-PITAL AS AN EDUCATIONAL AND SOCIAL AGENCY

WINFRED OVERHOLSER, M.D., Sc.D.,
Superintendent, Saint Elizabeths Hospital
WASHINGTON, D. C.

In selecting a subject which might be of interest to a group of physicians concerned with hospital standards and with medical education, it has seemed that some consideration might well be given to a group of institutions which constitute one half of the hospital beds of the entire country, namely, the state mental hospitals. These institutions deal with a field of medicine which has developed rapidly during the last quarter century and which has become more and more clearly recognized as closely related to general medicine and to the other specialties. Furthermore, they are of interest as being predominantly public in ownership and operation, less than 2.5 per cent of the mentally ill of the entire country being cared for in private hospitals.

Although instances of mental disorder have been recorded from the dawn of history, and although this form of disease was the subject of consideration by Hippocrates and Galen, during the dark ages, the middle ages, the Renaissance and even a large part of the modern period, the subject was considered to lie much nearer to the field of philosophy than to that of medicine. The victims of such disorders were either looked on as witches and executed or were classed, as in the early days of this country, along with drunkards and other types of so-called criminal. In the American colonies drunkards and paupers and the "furiously mad" were classified together not only in the same statutes but in the same kind of institutions; namely, jails. Those mentally ill who were not "furiously mad" were merely allowed to wander at large or were warned out from town to town. It is probably no exaggeration to say that much of the so-called stigma which exists in the care of the mentally ill today is a relic of this attitude of the early laws. It was not until 1773 that any of the colonies made official and public provision for the mentally ill in the establishment of a state hospital at Williamsburg, Va. Indeed, in the early 1840's, when Dorothea Lynde Dix started her astonishing career, a career which resulted in the establishment or enlargement of over thirty mental hospitals in this country, there were not over five public mental hospitals in existence in the whole of the United States. By 1870 the number had grown to fifty public and sixteen private hospitals, with a population of about seventeen thousand, and approximately ten thousand admissions a year. Although an attempt was made to be humane and decent in the care given to these patients, the custody was essentially nontherapeutic in purpose, and the institutions were generally known as asylums; that is, places of refuge. Their growth since that time has been little short of staggering.

There are at present, according to the United States Census 1 (for 1938), over five hundred mental institutions in this country, among them one hundred and seventy-six state hospitals, two federal, twenty-six Veterans Administration, sixty-seven county and city, seven psychopathic hospitals and probably about two hundred and fifty private institutions of greater or less size. In the state hospitals alone the population at the beginning of the year 1938 was 424,028, and during that year there were in round figures 106,000 admissions, nearly 58,000 discharges and 31,000 deaths. The actual cost of maintaining these institutions during that period was over \$113,000,000, without regard to the cost of permanent construction or the loss to the community in the earning capacity of the patient. Of late there has been a rather rapid growth in the number of patients cared for in the mental hospitals of the United States, the rate per hundred thousand of general population having risen from 241.7 in 1923 to 361.7 in 1939, an increase of 45.5 per cent. This increase has naturally caused great concern in some quarters. Extensive building programs have been undertaken in several states, and a few have, under the economic lash, newly discovered the system of family care in use in one state since 1884 (Massachusetts) and developed at Gheel, Belgium, since the Middle Ages. Many factors are involved, among which the actual incidence of mental disorder in the community is only one. Among these factors may be enumerated, first, the attitude of the public toward the institution and toward mental disease in general; second, the existence of adequate facilities; third, the existence of laws which do not render admission to the institution unduly difficult or attended by public humiliation; fourth, the economic situation of the families or relatives; this often has a bearing both on the patient's commitment and his early removal from the institution before he is entirely self supporting. Other factors, such as the degree of urbanization and the proportion of elderly people in the community, must also be considered.

As to the types of mental disorder, the campaign against syphilis has unquestionably caused a reduction in the admissions for dementia paralytica. In the case of the alcoholic psychoses a considerable reduction took place at the onset of prohibition, but there has been a steady rise since 1921, with a result that we are now at approximately prewar levels (4.5 per cent of first

Read before the Thirty-Eighth Annual Congress on Medical Education and Licensure, Chicago, Feb. 17, 1942.

^{1.} Patients in Mental Institutions, 1938, Washington, D. C., Government Printing Office, 1941

admissions). The most striking increase has taken place in the arteriosclerotic group, a group which has shown an increase in ratio which is almost fantastic; indeed, from 1912 to 1936 the rate grew from 7.7 to 49.0 per hundred thousand of general population over 40 years of age, an increase of 536 per cent!2 It has been well demonstrated that the liability to develop mental disease increases very rapidly after the age of about 50 and indeed that the incidence of mental disorder roughly parallels the mortality curve. The proportion of aged in the population is showing a rather rapid rise. From 1900 to 1935 it rose from 4 to 6 per cent (persons over 65), and it is estimated that by 1980 approximately 14 per cent will be in the upper age bracket. As a result, an increase in the senile and arteriosclerotic groups is fully to be expected. What effect the present war will have on the incidence of mental disorder cannot yet be predicted. The experience in England has indicated no substantial change in the admission rates to mental hospitals so far, but it is altogether too early to say what the ultimate effect of a total war may be on the mental health of any nation.

It is needless to point out that different states have different standards. This fact is well illustrated by the statistics relative to mental hospitals in various states. The effect of low appropriations, of the backwardness of legislatures in furnishing facilities and of the varying methods of admission is well illustrated, for example, in certain statistics. The average annual cost of maintenance per capita in 1938 was \$297.13, with variations from \$427.86 (Massachusetts) and \$411.65 (New Jersey) to \$117.82 (Kentucky) and \$146.75 (Missis-The average number of patients per hundred thousand of general population was 344.3, the greatest being 544.8 (New York) and 541.1 (Massachusetts), the least 179.1 (New Mexico) and 183.2 (Idaho). The crowding (average 9.4 per cent) ranges from 31.8 per cent (Missouri) to an excess of beds of 15.9 per cent in Rhode Island. Finally, the number of patients per employee (average 5.7) varies from 3.2 (District of Columbia) to 11.4 (Idaho).

METHODS OF ADMISSION

Reference has been made to the methods of admission to state hospitals. It is interesting to note that until 1872 admission to mental hospitals was about as simple as to any other institution. This was undoubtedly as it should be, and, as a matter of fact, abuses were practically unknown. In 1867 the famous case of Mrs. Packard received much attention in Illinois, with the result that a wave of legislation requiring mandatory jury trial swept over the country.8 It was alleged that many patients were, to use the colloquial phrase, railroaded, and that, in order to safeguard the occasional individual against such a fate, trial by a jury was necessary. Probably little argument is required to the effect that the haling of a mentally ill person into a criminal courtroom before a jury of laymen with a public recitation of the symptoms is humiliating to the family and psychologically most painful and harmful to the patient. I am glad to say that nearly all states have retreated from this extreme and barbarous state of affairs, the latest jurisdiction being the District of Columbia. Two states. Mississippi and Texas, still require a jury trial.

in the latter state only if the patient is to be retained in the hospital over ninety days.

All states but fourteen and the District of Columbia provide for some form of voluntary admission, although several of the states which have such laws on the books do not use them for one reason or another. The desirability of permitting a patient to enter a hospital without adjudication should be obvious and has been to most of the progressive jurisdictions. In eighteen other states some temporary or emergency admission, without any form of court order, is permissible. This is an extremely important point. In most states the form of adjudication is relatively informal and at least is taken care of in the absence of a jury and in chambers if a judge has to enter the proceedings. The fear of railroading is one of those bogies which dies hard. There is no reason why any such fear should exist provided adequate inspection and supervision of the mental hospitals of a state is provided for by law in the form of a department of mental diseases or some supervisory body of that nature. So far only one state, namely Pennsylvania, has made sufficient progress to strike out the obnoxious words "insanity" and "lunacy" from its law relating to the mentally ill. It is an unfortunate fact that a recent study showed that 64 per cent of the patients taken to mental hospitals are still taken there by the sheriff or police and that 29 per cent are held in jail pending such transportation. Thus we can see that in spite of the advances which have been made in the standards of mental hospitals the legal procedures have lagged considerably behind what is best for the patient. For those who are interested in the standards and the practices in the various states, mention may be made of the Study of the Public Mental Hospitals in the United States 1937-1939, published in 1941 by the United States Public Health Service as supplement 164. This study reports the work of the Mental Hospital Survey Committee, a joint agency established in 1936 by the American Psychiatric Association, the National Committee for Mental Hygiene and the United States Public Health Service, which has made a survey of most of the mental hospitals in the United States. The study is an extremely valuable collection of reliable data compiled by a disinterested group.

DEVELOPMENT OF PSYCHIATRY

In the period during which hospitals have been developing in size and in facilities, psychiatry has been developing as a specialty of medicine. In the early days the members of the asylum medical staff were looked on askance by the general medical profession and were considered as being out of the stream of general medicine. It was not until the turn of the present century that psychiatry as a separate discipline really began to take shape, and even then the psychiatry was essentially the institutional variety. With the epoch making work of Freud, however, the relationships of psychiatry to the neuroses (previously thought to belong in the field of the neurologist), to the behavior disorders of children, to the delinquent behavior of adults and, indeed, to the minor difficulties of everyday life, as well as to various types of physical manifestations of emotional conflict, began to be recognized. Interest in the treatment in the institutions was one of the first developments, but subsequently the outpatient departments developed, child psychiatry has made rapid progress, forensic psychiatry

;

^{2.} Landis, Carney, and Page, J. D.: Modern Society and Mental Diseases, New York, Farrar and Rinehart, 1938, p. 141.
3. Deutsch. Albert: The Mentally III in America, Garden City, New York, Doubleday, Doran & Com., 1937, p. 423

^{4.} Kempf. Grover A.: Laws Pertaining to the Admission of Patients to Mental Hospitals Throughout the United States, supplement 137, Public Health Reports, Government Printing Office.

has been recognized as a specialty, and even more recently we have come to hear much of psychosomatic medicine. Indeed, one of the refreshing developments in modern psychiatry is the recognition on the part of the internist, the surgeon and the practitioner of the various specialties that a very fair proportion of the complaints which are brought to him for care are primarily psychogenic and due to the emotional conflicts of the patient rather than perhaps cases for drugs or for operative procedures.

With these developments has come a recognition that the staff which allows only one physician to 400 or 500 patients is hopelessly inadequate. There has also come recognition of the need of training, of the need of medical libraries and the development of the various auxiliary services, such as clinical psychology, nursing, occupational therapy and social work. In the medical schools an increasing interest has been taken in the presentation of psychiatry to the students as something which is living and intimately related to general medicine, rather than a freakish specialty instruction in which has to be endured. The American Psychiatric Association, through the chairman of its Committee on Psychiatric Education, Dr. Franklin G. Ebaugh, and with the assistance of the Rockefeller Foundation, has accomplished much in the postgraduate training of physicians and in the training of medical students. Courses in medical schools have been substantially increased in length and in the variety of the problems presented to the students, with the result that the present day medical graduate has a far better grasp of the possibilities of psychiatry than did his fellow of twenty-five years ago. Progressive mental hospitals have recognized that those trained in them are not the only ones who profit. The value to the hospital of maintaining a teaching program is reflected in the attitude of the senior members of the staff and indeed, in the entire personnel of the hospital, with the result that the patient benefits.

At present eighty state hospitals have been recognized and approved by the American Medical Association as suitable institutions for residencies in psychiatry. This has certain corollaries not only in the physical equipment of the hospital but in the numbers of personnel and their qualifications. It is the hospitals which carry on an active training program for the benefit of young and well trained medical graduates which are in a position to render the best service to their patients. That, after all, is the fundamental reason for existence of any hospital or hospital function. The interest in training procedures was vastly stimulated by the establishment of the American Board of Psychiatry and Neurology in 1934. This board, which certifies specialists in psychiatry and neurology, scrutinizes closely the type of institution in which the applicant has had his psychiatric training. No longer is it sufficient to give the new doctor his keys and tell him to "make rounds"; active instruction and guidance are now required in order that the full benefit of the wealth of clinical material in the state hospital wards may be This scrutiny in itself has done much to stimulate the hospitals to improve their standards of instruction of junior staff members.

At one time many mental hospitals had training schools for nurses, but, on account of the activities of some of the national nursing associations, many of these

training schools had been forced out of existence when the present emergency arose. At the present time hospitals are being encouraged to reestablish schools in order to meet the demand for nurses. Many of the better hospitals, which were more firmly endowed financially, have continued their training schools; as a matter of fact there is every reason why the graduate of a training school in an amply equipped mental hospital should in many ways be a better nurse for her experience with mental patients than the one who has had experience only in a general hospital. In fact, the tendency is growing for the general hospital training school to require affiliation with a mental hospital as part of its course. In addition to training medical students, residents, clinical psychologists and nurses, a number of hospitals are utilized in connection with the training of social workers, occupational therapists, dietitians and theological students. The value, indeed, of the recognition by the clergyman of the early symptoms of mental disorder and the need for treatment by a psychiatrist is being widely recognized today in theological schools. With the growing interest in the mental hygiene aspects of teaching, the facilities of the mental hospital might well be made available to teachers' colleges. Likewise, as a scientific approach to the problems of delinquency gains momentum these institutions may well take a part in the training of police.

STANDARDS

Some of the standards for mental hospitals which have been set by the American Psychiatric Association and are today generally recognized may be briefly considered. These standards have been set up as a result of many years of experience of conscientious state hospital administrators. That they do not receive universal acceptance is unfortunately the case. They are, however, approximated by the more progressive states, and, indeed, the number of states which fall lamentably below these standards is, fortunately, fairly small. The first qualification, which might well be considered by some states, which shall be nameless, is that the chief executive officer must be a well qualified physician, an experienced psychiatrist, whose appointment and removal shall not be controlled by partisan politics. As a corollary, all the persons employed at the institution ought to be subordinate to him and subject to removal by him if they fail to discharge their duties properly. As a second corollary the positions of administration of the institution must be free from control of the purpose of partisan politics. It is peculiarly true of mental hospitals that every activity of the institution affects in some manner the welfare of the patients. It is for this reason that we find the requirement of a psychiatrically trained physician as head, the superintendent to have control not only of the medical care of the patients but of the general policies of the hospital, including purchases, the kitchens, the farm and other activities. In at least one state (Massachusetts) it is required that the superintendent shall be a diplomate in psychiatry of the American Board of Psychiatry and Neurology and that he shall have had four years of administrative experience in a mental hospital. In some states, however, it is sufficient that the superintendent shall be friendly with some influential politician, and there are instances of nonmedical heads of such institutions or cases in which the steward or purchasing officer is not appointed by the superintendent or is even coordinate with him. Dual or lay control of a mental hospital jeopardizes the welfare of the patients.

^{5.} For a detailed study of this subject see: Ebaugh, Franklin G., and Rymer, Charles A.: Psychiatry in Medical Education. New York City. Commonwealth Fund, 1942.

As for staff (the proportion of physicians to total patients), there should be not less than one to one hundred and fifty, in addition to the superintendent, and to the number of patients admitted annually not less than one to forty. There must be dentists, a staff of consulting specialists, an organized medical staff, suitable working facilities for the staff and carefully kept clinical histories. Suitable classification of the patients is, of course, essential, as is the existence of a laboratory, x-ray apparatus, a working medical library and suitable treatment facilities. The existence of outpatient clinics and an adequate force of trained social workers are called for, as well as an adequate nursing force of a proportion not less than one to eight. Such facilities are expensive, but in the long run they are a good economy to the state, for they mean early and adequate treatment of the patient, with corresponding likelihood of early restoration to the community and to a useful economic place.

OTHER FUNCTIONS

I have reviewed briefly some of the functions of the state mental hospitals, with particular reference to education and to the welfare of the community. would be interesting, if time permitted, to consider some of the other possible functions of a state hospital. The state hospital should serve as a focus of the mental hygiene activities of the entire community. has done more, perhaps, to break down the local distrust of a hospital than the existence of outpatient clinics, both for adults and for children, maintained by the hospital, as is the case in many states. Still another function which has been extremely valuable has been the rendering of service to schools in examination of retarded or problem children, and to the court, under the Briggs Law of Massachusetts and the Desmond Act of New York, for the examination of persons coming up for trial. In the latter activity the hospital staffs have an excellent opportunity not only to learn much of the reasons for adult behavior but also to interpret to the court and to the public a more reasonable and understanding attitude regarding what is generally denominated as crime. Finally, in speaking of educational facilities we should not forget that the existence of the state hospital and its entire history represent a chapter in the education of the general public in an attitude toward mental disorder which is one not of fear, not of distrust of the institution, of the psychiatrist and of the afflicted person, but one which recognizes mental disorder as an illness which calls for sympathy, encouragement, understanding, and intelligent and trained treatment.

A Game with Ideas .- The teacher and the student likewise play a fascinating game with ideas in the classroom. teacher rises to his feet to expound noble ideas which it took him years to discover. The student respectfully commits them to his notes. The teacher urges the student to become acquainted with other noble principles which are to be found in the textbook. The student faithfully endeavors to ascertain which of the two sets of principles is most likely to be favored on the tests. Toward these he exhibits, for the time being at least, an unmistakable attitude of devotion. But when the final examination is over he sells the textbook for enough cash to hitch hike home and kindly returns the ideas, as good as new, to the place whence they came. With respect the professor welcomes them home, imagining that they have been somewhere, and sets about giving them new clothes for another journey of the same kind.—Terry, Paul W.: Some Reflections on Ideas, Assn. Am. Coll. Bull. 26:257 (May) 1940.

THE WAR, THE COLLEGES AND FEDERAL AID

WILLIAM B. MUNRO, Ph.D., LL.D. PASADENA, CALIF.

The war has brought the universities and colleges of the United States face to face with serious problems. Student enrolments in the graduate and professional departments of many institutions, with the exception of medical schools, have seriously declined. With the downward extension of the age groups, as provided in recent amendments to the Selective Service Law, the junior and senior classes in undergraduate departments are certain to be similarly affected next autumn. And many prospective freshmen will doubtless find jobs in industry and give up the idea of entering college until after the war, which means that most of them will never enter at all.

It is true, of course, that efforts will be made—they are already being made—to maintain enrolments by relaxing the normal requirements for admission, by carrying on instruction through the summer and by shortening the time required for graduation. In some coeducational institutions the quota of women students is being raised above the usual limitation. These endeavors to keep the student body up to par may be in some measure successful; but if educational administrators are wise they will prepare for a substantial reduction in the attendance at their institutions during the next couple of years.

In the endowed institutions this means a serious decrease in the revenue from tuition fees at a most inopportune time, namely, when income from endowment has dropped by reason of the decline in interest rates and when the burden of increased taxes is making it more difficult to get financial help from the alumni. The state universities are more fortunate, for the moment at least, in that they are not dependent to any large extent on student fees or endowment income, but if their enrolments fall off it is not improbable that the state legislatures will feel justified in trinming educational budgets accordingly. Heavy demands for other expenditures, owing to the war effort, will encourage them to do this.

In any event the colleges should make up their minds to tighten their belts for the duration, and this is not going to be easy to do. Buildings have to be kept up, and it is costing more to maintain them than formerly. Wages of janitors, groundsmen, clerks in the administrative offices and other college employees are being forced skyward by competition for workers from outside. Likewise the cost of food in the college dining halls and of service in the dormitories is steadily rising. Laboratories cannot function without supplies, and these are now costing more. The size of the instructional staff will doubtless be reduced by the calling of some teachers into the defense services, and savings can be expected in that direction; but it is unlikely that this retrenchment in faculty payrolls will go very far toward solving the whole problem. Higher education, like everything else, is going to be at higher cost.

Caught in this dilemma between rising outlays and declining income, the colleges will be sorely tempted to follow the procession of suppliants to Washington.

Read before the Thirty-Eighth Annual Congress on Medical Education and Licensure, Chicago, Feb. 16, 1942.

They will feel that the federal government ought to recognize their plight and do something for them, either by an arrangement which would defer certain groups of students from induction or by grants of financial aid to tide them over. And why should not the federal government be asked to help the colleges by grants-in-aid? They are institutions of public welfare, and there is very little in the way of public welfare effort which the federal government is not being asked to subsidize in some way, direct or indirect. A few years ago these petitions were presented as a way of softening the hardships of an economic depression; today federal aid is being sought with equal urgency as a means of tiding over the dislocations of war prosperity.

The fact is that our people have been only too well schooled in the habit of lifting up their eyes to Mount Sinai on the Potomac—the hill from which cometh their aid. There was a time, not so long ago, when the states and local communities expected to pay for their own public welfare enterprises, including their educational institutions, and to be content with what they could afford. That day seems to have gone by. Even though the national government is now faced with the largest budget in all history, it will not be relieved from the importunities of those who want benefits for themselves in the name of maintaining the national morale.

STATE AID FOR SCHOOLS

If our institutions of higher education seek aid from the national treasury they will have both precedents and arguments to support them. Such assistance, if given, would simply be the culmination of what has been developing in the whole field of American education for a long time. The arguments supporting it are merely an extension of those which, for many years, have done service in relation to the public schools. Our first public schools, grammar schools they were called, began as community enterprises. They were wholly supported out of local taxes, and they received no other financial support until the opening of the West created a new problem.

In these new areas it became apparent that many of the pioneer communities, when left to themselves, either set up no elementary schools at all or provided very inadequate ones. Children on the frontier were growing up in illiteracy. Consequently the territorial and state governments in these areas found it necessary to make the establishment of grammar schools compulsory and often to provide money as a means of enabling the poorer settlements to comply with this requirement.

This, in due course, proved to be merely the onset of what grew into something approaching a nationwide State aid to needy localities developed into state aid for all elementary public schools, then for high schools as well and finally in some cases for junior colleges on the basis of their average daily attendance. The original subsidies were defended as a means of "equalizing educational opportunity" as between richer and poorer communities; the newer practice of statewide subsidization was not largely inspired by any such equalitarian philosophy but by a desire to lessen the load of taxes on real estate, especially on agricultural land. When schools have to be supported from local taxes, the property owner bears virtually the whole burden; but by state subsidies a part of the load can he shifted to the payers of income taxes, franchise taxes, inheritance taxes, sales taxes and other state

levies. It is not surprising, therefore, that the policy of state aid to local schools has had its greatest development in the agricultural states.

FEDERAL SUBSIDIZATION

The Constitution of the United States is silent with respect to public education. Its intent was to leave this responsibility to the states. And in large measure the states accepted this obligation until the economic depression of the recent thirties proceeded to break down the historical division of responsibilities between the federal and state governments. Literally billions of dollars were distributed by the national treasury to the states for all sorts of things and there seemed to be no reason why education, lower and higher alike, should not claim its share. Old arguments were brought forth to do new service, but in a higher range and on a wider scale. Federal aid to the universities and colleges began to be urged, and is still being urged, as a means of equalizing educational opportunity, not merely as between states or communities but as between individuals, by giving every young man or woman, rich and poor alike, a chance to secure a college education.

Momentarily, this campaign for a general subsidization is in eclipse as the result of the pressure on the federal treasury for defense expenditures; but its place has been taken by more restricted proposals tied up with the national emergency. To the extent that the shortening of the usual time required for graduation has put the colleges to some greater expense, it is now argued that the federal government should assume the extra cost, whatever it is. Likewise, if the colleges keep functioning right through the year, this will obviously be hard on those students who have expected to pay their way, in part at least, by earning money during the long summer vacation. So it is suggested that the federal government come to the aid of such students by giving them money or by lending it to them without interest.

Of course there is much to be said for emergency aid along the foregoing lines. But the danger is that any plan of subsidization devised for the emergency will be continued as a permanent feature of federal finance long after the emergency has passed. There are few things more tenacious than governmental subsidies once you begin the practice of giving them for any purpose and under any circumstances.

COMPETITIVE SCHOLARSHIPS

This idea of asking Congress to underwrite a college education for every one would have seemed strangely fantastic a generation ago, but there can be no blinking the fact that it has gained support from many influential quarters in recent years. Two chief arguments are used in its support-one educational, the other financial. Compressed into a sentence or two, the educational argument runs this way: If the country is to remain a democracy it must maintain the principle of the carrière ouverte by giving all its young men and women an equal opportunity to become leaders. This it can do only by making higher education a possibility, not merely for those whose parents can afford it, but for all qualified young men and women irrespective of their economic status.

The objective is to steer more students into the universities and colleges, when there are already more of them there than deserve to be. This is proved by the fact that about half of those who enter never stay

to graduation, while a sizable proportion of those who do become graduates are still uneducated. When they forget what they have memorized, not much will be left. Many of them, after four years of immersion in the collegiate atmosphere, remain illiterate to a degree, even with a degree. They are the handiwork of higher education—but higher than what? Higher, in some cases, than their intelligence warranted.

The slogan "equal opportunity for all" is a popular one. As applied to college education, however, it merely reduces a complicated problem to engagingly simple terms. Not all young people are able to profit equally by equal opportunity. Every teacher knows that many of them reach the point of diminishing returns in formal education before they arrive at the usual age of college entrance. For such persons the best education is vocational training, either for a job or at one. Too many young Americans are already sleeping through lectures when they ought to be awake at a work bench.

The proposal to use federal money in order to extend opportunities for a college education over a broader constituency would not make this situation better. puts all the emphasis on quantity-more colleges and bigger ones. What we need is emphasis on qualityfewer colleges and better ones. There is already lots of room in the colleges of the United States for every one who is qualified and willing to profit by what these institutions have to give. You will hear averments to the contrary, but it is nevertheless true that there is hardly a college in this country, from Tusculum to Tuscaloosa, which is turning away any meritorious applicants today. Most of them, as a matter of demonstrable fact, are actively campaigning for more students. especially for more male students, in the endeavor to keep their budgets balanced. They have "waiting lists," so they say; but in many cases these are lists of students for whom the college is waiting.

If federal aid is ever to be made available it should not be by aiding the colleges to attract more low voltage youngsters. The aid should be by way of competitive scholarships whereby any boy or girl of exceptional capacity but of slender means would be enabled to attend any college of his or her own choosing. Such students would help to raise the intellectual level of the student body. They should be freely permitted to make their own choice among institutions, for although many of them might choose to enter what educators sometimes designate as "second rate" colleges there is no college in the United States, however weak or poor, at which a bright, earnest student cannot get a good education if he sets out to do it. And by the same token there is hardly a college in the land, however rich and strong, at which a dull witted, lazy student cannot avoid getting one if he is so minded. It is the student rather than the institution that determines the worth of the educational process. That being the case, it is surprising that colleges, on the whole, give so little attention to their methods of instruction and so little to the selection of students who can profit by any instructional method.

REDISTRIBUTION OF WEALTH

The other argument in favor of federal aid to the colleges is financial. Federal subsidies are advocated as a measure of fiscal reconstruction—as part of a general plan for the redistribution of wealth and income. According to a recent publication of the National Advisory Committee on Education, federal aid would place

"a larger share of the tax raising responsibility on the level of government which . . . is in the best position to distribute its taxes equitably, efficiently, and with a view to their economic effects."

There, in one sentence, is the cloven hoof that betrays one type of sponsorship for greatly increased federal largesse to the states. The national government can levy high taxes on corporate profits, inheritances and individual incomes, thus obtaining huge sums of money which can be distributed "with a view to their economic effects." This, of course, is an ingratiating way of saying that the federal government should use its taxing power to compel a redistribution of wealth under color of promoting the interests of education. Much of the support for federal aid to higher education comes from those who care little about the purpose for which the money is being expended so long as it serves to take from those who have and give to those who have not.

But it does not often profit either men or institutions to accept what they have not earned. There is an Italian proverb which the colleges will do well to remember if they are invited to dip into the national treasury: Dannoso è il dono che toglie la libertà (Curséd is the gift that taketh away our liberty). For whatever may be hoped to the contrary, federal aid will inevitably lead to federal guidance, discipline, restraint and control. Those who hold the purse will wield the power. That must be the case, for it would be a negation of responsible government if public funds were permitted to be spent without control by the authorities who make the appropriations. Expenditures without control are bound to be wasteful, as every one knows; there is indeed no greater incentive to wastefulness than to let authorities, whether public or private, spend at their own discretion money which they have been at no pains to raise.

When any one argues, therefore, that the federal government could aid the colleges by subsidies without placing any constraint on their freedom, he is disregarding the lessons of experience in this field. We know only too well what has happened in the case of federal aid to the states in the matter of highways, public health and vocational education. At the outset the national authorities prescribed nothing more than the main objectives and the general standards. Then, little by little, the terms on which the subsidies could be obtained were defined with increasing strictness. In this connection it is significant that the National Advisory Committee on Education, which has been an ardent supporter of federal aid to education, recently urged that a revision of the federal statutes be made in order to "free vocational education from many burdensome restrictions imposed from federal sources" and to "end interference with local school administration."

THE OUTCOME

Federal subventions make for centralization of control, always and everywhere. Centralization of control, in turn, leads to an insistence on uniformity through the setting up of procedures which all are expected to follow. Howsoever excellent these procedures may be, they discourage experimentation and diversity. In the end there is apoplexy at the nerve center and paralysis at the extremities. The division of power and responsibility between the national, state and local governments in the United States is not a mere matter of geographic convenience. It is a democratic concept based on the proposition that power and responsibility should be widely decentralized as a safeguard to local

freedom of action. It is a concept which looks on differences of action and opinion as something to be encouraged, not repressed—and our universities exist in order that such differences may find a haven of tolerance. Today the world is moving at an alarming pace toward a regimented intellectual economy, a way of life in which there is no place for dissent or nonconformity. Even in Great Britain and the United States, where democracy is still holding its battlements, there are noticeable trends in the same direction.

Before listening to the suggestion that they balance their own budgets by more heavily unbalancing the national one, the colleges should consider whether they might not be accepting the deadly gift of Minerva, the wooden horse of Troy. The tradition of freedom which the endowed educational institutions of America have built up during three hundred years is a pearl of great price. It should not be surrendered, even though the alternative is near starvation. No doubt such a surrender will never be made by them wittingly. But there is some danger that it may be done without realizing what long range implications are involved. "Early and provident fear," as Edmund Burke once said, "is the mother of safety." Uncle Sam might prove to be a kindly overlord—but an overlord he would be all the same.

California Institute of Technology.

WARTIME PROBLEMS OF THE PUBLIC HEALTH SERVICE

THOMAS PARRAN, M.D.
Surgeon General, U. S. Public Health Service
WASHINGTON, D. C.

The physicians of the United States face a task of historic importance. It is a rearguard action as one considers the net saving of life and decrease in suffering. It is in the front line of attack with regard to its potentiality to strengthen the arm of the fighting forces and speed the day of final victory.

One point must be made clear in the beginning: the Medical Corps of the Army and Navy have responsibility for the medical care of the personnel of the armed forces. The ratio of physicians to the strength of those forces must of necessity be larger than the ratio of physicians per thousand of the general population. The Public Health Service, working in partnership with the state health authorities, has responsibility for general health conditions of the whole remaining populationmore than one hundred and twenty millions-even when the whole military and naval force is mobilized for all out final drive to victory. In addition to holding the lines against preventable disease, it is necessary for the public health profession, working in close harmony with the private practitioner, to build more strongly than ever before that condition of positive health without which our population can neither sustain itself in time of trouble nor attain the tremendous production required to supply our fighting forces and those of the United Nations with the munitions of war.

The Public Health Service also has many special problems arising out of the war. The load of clinical care in our twenty-nine hospitals mounts steadily with the constant increase in the Coast Guard and the merchant marine. The industrial hygiene service must

Read before the Thirty-Eighth Annual Congress on Medical Education and Licensure, Chicago, Feb. 16, 1942.

keep pace with the needs arising from high speed assembly lines, which will employ some fifteen million men and women within the year. Great Britain learned that it is urgently necessary to have the full time services of a trained industrial physician in every large plant. Less than one seventh of our workers have that service now.

St. Elizabeths Hospital will face demands beyond any in its history. The increase in the population of the District of Columbia is of phenomenal proportions; moreover, the hospital is required by statute to care for the mentally ill of both the Army and the Navy. New and urgent tasks have been laid on the research division of the Public Health Service, the National Institute of Health, to meet both industrial and epidemic hazards. Establishment of an Emergency Medical Service, under the auspices of the Office of Civilian Defense, obviously must be given first priority in the vulnerable areas. It is necessary to perfect every detail of these plans now. There will be no time when the bombs begin to fall.

Our greatest specific new responsibility arising out of wartime conditions, however, has been due to the vast shifts of population. Military camps, industrial expansion, new shipyards, arsenals and other reallocations of national power to war effort are turning villages to cities almost over night. Acute problems of sanitation, public health, including venereal disease control, hospitalization and medical care are created thereby.

We are all agreed that no effort should be spared in securing for the Army and Navy the medical personnel needed increasingly for the care of our soldiers, sailors and marines. The Procurement and Assignment Service, under the able chairmanship of Dr. Frank Lahey, provides the method of using to the best advantage the available physicians and dentists of the country. Every governmental agency is cooperating fully with that office.

It is clear however that, when army and navy needs have been met in full, a huge task remains for protection of the civilian population and for the smooth functioning of specific war responsibilities of that population. As regards the total number of doctors involved, public health is relatively a small specialty of medicine. Our best estimates show that the number of full time physicians employed in the federal, state and local public health work approximates three thousand five hundred. Another thousand qualified doctors are needed now to fill vacancies caused by the calling of reserve officers in states and localities to active duty and to meet new needs as previously indicated.

The numbers of men needed are far less significant than the kind and quality of men and their special training. Unlike the Army and Navy Medical Corps, who need men essentially for clinical service, only a fraction of the doctors needed now by the Public Health Service, and almost none of those needed by the state and local health authorities, can be drawn from the private practice of medicine and put to work immediately without intensive special training. Public health skill of any one type (venereal disease is a good example), and there are scores of specific illustrations, requires the capacity to translate a doctor's clinical knowledge of disease into a system of control that will not only check the disease in the individual but protect the community against it, and it is most important that he have the capacity to put that plan of control into

It is, perhaps, not clearly understood that the men in the regular commissioned corps of the Public Health

Service are commissioned by the President and hold status of rank, pay and retirement on a parity with regular medical corps officers of the armed services. We select them with rigorous care and find it most profitable to train them ourselves in the specific field for which their capacities best fit them, using fully the special training centers of universities and other medical centers.

One problem which has not been met is that of medical care in the areas whose populations are recently swollen by the influx of population for both military and industrial establishments.

Our specific information comes from three sources: Since November 1940, at the request of the state health officers, we have been conducting a sanitary reconnaissance in the defense areas by sending in teams of physicians and engineers to obtain first hand intelligence of the needs and available health resources. In addition, the defense housing projects administered by the Federal Works Agency have enlisted the Public Health Service in an advisory capacity, as proper housing is closely associated with the provision of basic sanitary facilities in these newly overcrowded areas and where the shortage of doctors inevitably comes to attention. We have found by preliminary investigation that the facilities for medical care in most of these areas are very poor; that the situation could become alarming in the event of epidemics. Also the Army has requested civilian physicians for housing projects located near Army posts, as the Army physicians have their hands full in caring for military personnel.

A major part of the problem, of course, is that of distribution. An announcement made last fall in Tric JOURNAL and to one thousand approved hospitals urged all physicians interested in practicing in defense areas to get in touch with the Public Health Service. About five hundred doctors answered. These were followed up by questionnaire on their qualifications. There is now a list of about three hundred physicians who have signified their willingness to move, usually with some preference as to locality.

By means of this list, plus the findings from additional surveys, it is hoped that physicians can be gotten into areas that greatly need them. Where it is desirable, the physician can rent quarters in a defense housing project.

In supplying medical personnel for defense areas, the problem of licensure has already caused confusion and delay. These difficulties often could be overcome by prompt granting of reciprocity to qualified physicians desiring to transfer from one state to another, or by temporary revocable licenses pending qualification. hope that the state boards of licensure will give serious attention to this matter with a view to speeding up the licensing procedure.

There are many competent physicians in the United States who have come to our shores as refugees. Many of these could be made immediately available for service in areas where the shortage is acute, if they could be licensed to practice. We should consider the possibility of combining self interest with hospitality and giving all these doctors who are qualified an opportunity to help meet the growing shortage of medical personnel.

It probably will be necessary for the public health schools to give shorter and more intensive courses to new medical recruits going into public health work. Some of the schools already have taken steps in this direction. I would venture to suggest also that the

medical schools of the country consider the possibility of intensifying their present courses in preventive and tropical medicine. A thorough knowledge of these subjects is a valuable asset to the large groups of recent medical graduates who will be going into the military and naval service, no less than a relatively small number going into public health service.

Because of the shortage of doctors, it will be necessary for various types of medical care to be diluted, for the doctor's time to be saved, by using in many routine technical tasks persons who are less well trained than those now engaged. This applies to laboratory procedures and to work in x-ray departments as well as to routines in the hospital wards and in the dispensaries and clinics. A great number of such technical personnel will need to receive intensive training.

Many thousands of nurses' aides are now being trained. Less attention has been given to the need for aides to technical personnel in other sectors. The need for them is none the less real.

This is total war; the civilian is at the front with the soldier. Civilian health and strength are as essential to victory as is the medical care of our armed forces. Needs are too urgent to permit half-way methods. Complete cooperation on the part of medical men throughout the country is the first requirement. By full use of every qualified doctor's ability, I am confident that the American medical profession again will meet effectively the supreme test. Public health takes on a new urgency. Heretofore we have sought health primarily for its value to the individual. Now we must attain it for the nation's security.

THE PRESERVATION OF HUMAN **PLASMA**

REPORT OF STUDIES WITH THE SULFONAMIDE COMPOUNDS

> FREDERICK K. HEATH, M.D. AND WILLIAM D. PROVINCE, MD. NEW YORK

Between August 1940 and January 1941 in New York City the Blood Transfusion Association, in cooperation with the American Red Cross, prepared 6,151 liters of liquid human plasma for England.1 Of this amount 8.5 per cent was found to be contaminated, despite the use of merthiolate in the concentration of 1:10,000. Because of this finding and the observations of Novak² and other workers in the field an attempt was made to investigate further the use of the sulfonamides in the preservation of blood plasma.

METHODS

Three separate series of experiments were carried out. In the first, from 12.5 to 20 cc. of pooled human citrated (0.5 per cent) plasma was placed in sterile tubes to

Dr A R. Docher supervised this study and gave many helpful sugges-

The human plasma was obtained through the New York chapter of the American Red Cross.

American Red Cross.

Financial aid was given by the Blood Transfusion Association and the Medical Division of the National Research Council.

From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

I. Report of the Blood Transfusion Association Concerning the Project for Supplying Blood Plasma to England, Jan. 31, 1941, Blood Transfusion Association, 2 East 103d Street, New York

2. Novak (footnotes 7, 9 and 12).

3. Harington and Miles Hunwicke Plecart and Philippe. 11

which increasing amounts of various sulfonamide derivatives were added so that the final concentrations were 10, 20, 30, 60, 100 and 200 mg. per hundred cubic centimeters. Sulfanilamide and the sodium salts of both sulfapyridine and sulfathiazole were the compounds tested. Each drug was made up with sterile 0.85 per cent solution; this was passed through a Seitz filter and the necessary amount was added to the plasma tube to bring about the drug concentration desired. Determinations

tion, was incubated at 37 C. while another set was kept in a refrigerator at 5 C.

Pour plate sampling was carried out weekly after thorough mixing, 0.1 cc. specimens added to 10 cc. of agar, or 10 per cent rabbit's blood agar in the case of the hemolytic streptococcus, being used. Finally, the pour plates were incubated for forty-eight hours or longer before being evaluated, since it has been our experience that under these conditions growth may not appear before forty-eight to seventy-two hours. The

Table 1.—Tubes Stored at 37 C. (First Series of Experiments)

	Organisn	n: Staphy	rlococcus	Aureus			Hemoly	tic Strep	tococcus		Ba	cillus Lac	tis Acroge	епсѕ
Drug	Inoculum	1: 17	Colonies/	Cc.		8 Colo	8 Colonies/Cc. 15 Colonies/Cc.			16 Colonies/Cc.				
Concentration, Mg./100 Cc.	1 Wk.	2 Wks.	3 Wks.	4 Wks.	10 Wks.	1 Wk.	2 Wks.	1 Wk.	2 Wks.	3 Wks.	1 Wk.	2 Wks.	3 Wks.	9 Wks.
Sulfanilamide 10 20 30 60 100 200	0 Inn. 0 0	Inn.* 0 0 0 0	Inn. Inn. 10 20	Inn. Inn. 10 0 50	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	 	0 0 0 0 0	Inn. Inn. Inn. Inn. Inn. 390	Inn. Inn. Inn. Inn. Inn. 0	Inn. 240 110 40 500 10	0 0 0 0 0
Sulfapyridine 10 20 30 60 160 200	Inn. 110 Inn. 0 0	Inn. Inn. Inn. O 20	Inn. Inn. Inn. 0 0	Inn. Inn. Inn. O O	0 0 0 0	0 0 0 0 0	0 0 0 0	20 0 0 0 0		0 0 0 0 0	Inn. 0 30 0 10	Inn. 0 0 0 0 0	Inn. 60 70 80 20 40	0 0 0 0 0
Sulfathiazole 10 20 30 60 100 200	Inn. 0 0 0 0	10 Inn. Inn. 10 0 20	Inn. 10 Inn. 0 0 20	Inn. 0 Inn. 0 10	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0		0 0 0 0 0	Inn. Inn. Inn. 110 100 0	Inn. Inn. Inn. 0 0	Inn. Inn. Inn. 200 40	0 0 0 0 0
Control	Inn. Inn	Inn. Inn.	Inn. Inn.	Inn. Inn	0	0 0	0	0		0	Inn. Inn.	Inn. Inn.	Inn. Inn.	0

^{*} In this and the following tables Inn. signifies innumerable.

Table 2.—Tubes Stored at 5 C. (First Series of Experiments)

Drug Concentration,	Organism: Staphylococcus Aureus Inoculum: 12 Colonies/Cc.					Hemolytic Streptococcus 8 Colonies/Cc.							Bacillus Lactis Aerogenes 16 Colonies/Cc.				
Mg./100 Cc.	1 Wk.	2 Wks.	3 Wks.	4 Wks.	10 Wks.	1 Wk.	2 Wks.	3 Wks.	4 Wks.	5 Wks.	11 Wks.	1 Wk.	2 Wks.	S Wks.	9 Wks		
Sulfanilamide 10		10	20	::0		16	36	10		10	0	20	O	0	0		
20	10	0	30	0		29	4	10		40	0	10	0	0	0		
30	0	10	0	80		14	58	0		30	0	0	0	ø	0		
60	0	50	0	80		11	8			20	0	0	0	0	0		
100	0	30	20	0		5	18	3		0	0	0	0	0	0		
200	••		••	••	••	• •		••	• •		••	••	• •	••	••		
Sulfapyridine 10	0	10	10	30		15	6	0		50	0	0	0	0	0		
20	0	20	10	0		15	0	10		20	0	50	0	0	0		
30	0	10	40	20	•••	10	G	10		10	0	40	0	Ô	ō		
. 60	0	10	0	Ó		2	16	0		50	0	10	0	0	Ô		
100	0	0	10	50		0	38	30		20	0	U	0	Ö	Ó		
200	••	••		••	••		••		••		••	••		••	••		
Sulfathiazole 10	30	10	10	20		3	22	30		50	0	10	0	0	o		
20	10	50	90	Õ	• • •	2	26	10		0	ò	0	ñ	ň	ő		
30	0	10	20	50		4	0	50	••	20	Ō	30	Ò	ň	ŏ		
60	Ō	30	0	50		Õ	2	10		10	Ō	0	ò	ő	ň		
100	0	40	Ò	50		0	30	30		10	Ò	40	ò	ň	ň		
200	••			••				••			••			••			
Control	Inn.	20	0	210		Inn.	38	100		30	0	30	0	10	0		
	Inn.	•••	20	30	••	Inn.	58	30		20	Õ	0	10	10	ő		

of the sulfonamide concentration in random plasma tubes were made after three months, and it was found that the drugs were present in the original concentration.

To these tubes, then, and one or more controls for each variety of bacteria used, was added a known number of organisms as determined by the dilution-plating technic. The organisms used * were hemolytic streptococcus strain cv203 and strains of Bacillus lactis aerogenes and hemolytic Staphylococcus aureus isolated from patients in the Presbyterian Hospital shortly before these experiments were undertaken. One set of such tubes and controls, securely stoppered against evapora-

results are recorded as the number of colonies per cubic centimeter of plasma-drug solution.

Our second group of experiments was essentially similar to the first. The drugs used were sulfanilamide, sulfapyridine, sulfathiazole and sodium sulfadiazine in concentrations of 10, 50, 100 and 200 mg. per hundred cubic centimeters. With the exception of sodium sulfadiazine, which was prepared by passing through a Seitz filter, the drugs were taken from stock, carefully weighed out and the necessary amounts added to 10 cc. tubes of plasma. Whereas at the higher concentrations of 100 and 200 mg. per hundred cubic centimeters the drugs at first remained undissolved, as evidenced by

^{4.} Cultures were obtained through Misses Gladys Hobby, Barbara Mulliken and Margaret Sheridan.

^{5.} Dr. David Bryce of the Lederle Laboratories, Pearl River, N. Y., supplied the sodium sulfadiazine.

a white precipitate at the bottoms of the tubes, they all went into solution during the first week. Determinations of the drug concentration in tubes chosen at random supported this conclusion. The organisms used were a strain of Streptococcus viridans isolated from a patient with subacute bacterial endocarditis who had received no chemotherapy, pneumococcus type I recently passed through mice and the same strains of Staphylococcus aureus and Bacillus lactis aerogenes as used previously. One cc. samples were taken weekly and added to 10 cc. pour plates of agar or 10 per cent rabbit

RESULTS

The first series of experiments are reported in tables 1 and 2. In the tubes stored at 37 C. (table 1) it will be seen that the hemolytic streptococcus failed to grow, even in the controls, despite two inoculums. This observation had been previously reported by Tillett.6 Staphylococcus aureus grew well for four weeks at concentrations of all drugs of 30 mg. or less per hundred cubic centimeters. With higher concentrations of the sulfonamides definite inhibition of growth was noted, but no consistently negative tubes were obtained.

TABLE 3 .- Tubes Stored at 37 C. (Second Series of Experiments)

										- oj 22	referin	chisj				
Drug Concentration,	Organism: Staphylococcus Aureus Inoculum: 40 Colonies/Ce							Streptococcus Viridans 30 Colonies/Ce.		Bat	eillus Lar 50 Colo	etis Aero mies/Ce.	genes	Pneumococcus 30 Colonies/Cc.		
Mg./100 Cc.	1 Wk.	2 Wks.	3 Wks.	4 Wks.	6 Wks.	8 W rs.	1 Wk.	3 Wks.	6 Wks.	1 WL.	2 Wks.	4 Wks.	8 Wks.	TWk.	2 Wks	3 Wks.
Sulfanılamide 10 50 100 200	Inn. 30 Inn. Inn.	Inn. Inn. Inn. 400	Inn. Inn. Inn. 200	Inn. Inn. Inn. Inn.	Inn. Inn. Inn. Inn.	Inn Inn. Inn Inn.	0 0 0	0 0 0 0	0 0 0	Inn. Inn. 5 5	0 0 0	Inn. Inn. 0	Inn. Inn. 0	11 0 1 3	0 0	0 0 0
Sulfapyridine 10 50 100 200	Inn. Inn. 260 Inn.	Inv. Inn. Inn. 200	Inn. 50 Inn. 200	Ion. Inn. Inn. Ion.	Inn. 200 Inn.	Inn. 38 Inn. 0	0 0 0	0 0 0	0 0 0	0 3 14 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0	0 0 0
Sulfathinzole 10 50 100 200	Inn. 50 Inn. 10	Inn. Inn. 150 Inn.	400 Inn, I Inn,	Inn. 4 0 0	Inn. Inn. Inn. 0	Inn. Inn. 10 2	0 0 0	0 0 0	0 0 0	1 0 1 8	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0
Sulfadiazine 10 50 100 200	Inn 0 0	Inn. 0 0	Inn 0 0	Inn. 17	Inn 5 13	Inn.	0	0	 0 0	:	0	0 0 .0	0	<i>"</i> :	ő ő	0 0
Control	Inn.	Inn. Inn.	Inn. Inn.	Inn. Inn.	Inn Inn	Inn.	0	0	0	Inn.	Inn aal	Inn. Inn.	Inn.	4	13	0 0

TABLE 4.—Tubes Stored at 5 C. (Second Series of Experiments)

Drug	Organis Inoculu			occus Aur	eus			ococcus 1 Colonies		Ba	ollus Lac 50 Colo	tis Aero; nies/Ce.	genes		Colonies	
Concentration, Mg /100 Cc.	1 Wk.	2 Wks.	3 Wks	4 Wks.	6 Wks.	8 Wks.	1 Wh.	3 Wks.	6 Wks.	1 Wk.	2 Wks.	4 Tiks.	8 Wks.	1 Wk.	2 Wks.	S WAS.
Sulfanilamide 10 50 100 200	50 10 90 60	22 4 15 0	0 0 2 0	4 3 6 2	2 2 3 0	\$ 6 17	10 1 0 0	4 0 1 0	0 0 0	10 220 10	0 0 0	0 0 0	0 0 0	30 0 0	2 3 2 1	0 0 0
Sulfapyridine 10 50 100 200	70 10 7 0	18 29 9	2 0 1 0	5 5 2 4	7 17 14 0	3 11 18 1	0 0 0	0 0 0	0 0 0	30 20 0 50	1 0 0	0 0 0	0 0 0	0 0 0	2 3 0 0	0 0 1 0
Sulfathiazole 10 50 100 200	80 30 30 20	13 21 17 27	0 0 7 0	3 9 3 0	5 2 2 5	12 19 11 5	0 0 0 9	3 0 0 0	0 0 0 0	0 5 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Sulfadiazine 10 50 100 200	 	13 12 18 34	0 0	12 2	10 13 ·2	31 0 3	0 0 			:	0 0		0 0 	· ::	3 2 0	; ;
Control		32 18	0	8 7	3 5	14 30	0 11	·: 4	ö	10	0 10	0	0		3	0

These were incubated for at least fortyblood agar.

eight hours.

The third group of experiments was done with 10 cc. samples of plasma containing sodium sulfathiazole in a concentration of 200 mg. per hundred cubic centimeters. In one experiment such samples were placed in uncovered Petri plates and exposed to air for periods ranging from five to one hundred and twenty minutes. Control agar and 10 per cent rabbit blood agar plates were exposed at the same time for thirty minutes. After exposure the plasma-drug solutions were placed in sterile tubes and kept at room, incubator or refrigerator temperature for a period of one week, during which time 1 cc. samples were incubated with 10 cc. of agar in pour plates for at least forty-eight hours.

Sampling at the end of ten weeks revealed that the organisms had died out in all tubes, including controls. The results with Bacillus lactis aerogenes were similar.

Table 2, showing the results in tubes stored at 5 C., indicates that no significant effect was obtained against either the staphylococcus, streptococcus or Bacillus lactis aerogenes. In this experiment the control tubes paralleled the test tubes except for the first week, at which time bacteriostasis was apparent.

Experiments of the second group are reported in tables 3 and 4. Here again at 37 C. (table 3) it will

⁶ Tillett, W. S., and Abernethy, T. J. Serological Reactions with Hemolytic Streptococci in Acute Breterial Infections, Bull. Johns Hopkins Hosp 50:270 (April) 1932 Tillett, W. S.: The Bactericidal Action of Human Serum on Hemolytic Streptococci, J. Exper. Med. 65:147 (Jan.) 1937.

be seen that growth of Staphylococcus aureus, while somewhat inhibited at the higher concentrations, was still present in most tubes after eight weeks, appearing in the sulfadiazine tubes, up to then apparently negative, after four weeks. This fact, plus the long period required for growth to appear in our pour plates in all these experiments, confirms the well recognized

Table 5.—Plasma Containing Sodium Sulfathiazole at Concentrations of 200 Mg./100 Cc. Exposed to Room Air in Petri Dishes at Varying Periods of Time

m' (r	ay	of S	am	plin	g	
Time in Minutes	1	2	4	5	7	22	Temperature of Storage
120	0	0	41				Room temperature approximately 20 O.
60	ō			٠.	0	••	Room temperature approximately 20 C.
30	0	0	••	• •	0	••	Room temperature approximately 20 C.
30	0				0		Room temperature approximately 20 C.
25	0	0			0		Room temperature approximately 20 C.
20	0	0			0		Room temperature approximately 20 O.
15	0	0			0		Room temperature approximately 20 C.
10	0	0			0		Room temperature approximately 20 C.
5	0	0			0		Room temperature approximately 20 C.
30	٠.			• •		0	5 C.
30	0			٠.	0		37 C.
30 Control				٠.	• •	٠.	Room temperature approximately 20 C.
30 Control	Inn.						Room temperature approximately 20 C.

inhibitory effect of the sulfonamides on bacterial growth and demonstrates the practical impossibility of one being certain of a bactericidal action. Thus, had the sulfadiazine tubes been discarded at the end of three weeks or had our pour plates been discarded after forty-eight hours, many more negative tubes would have been reported. Little growth was obtained with Streptococcus viridans and the pneumococcus in either the control or the treated tubes. With Bacillus lactis aerogenes some bacteriostatic effect was obtained in the treated tubes.

At 5 C. growth of Staphylococcus aureus was poor but persistent, despite the drugs. The other organisms failed to multiply in test or control tubes.

The last set of experiments (tables 5 and 6) indicates that the plasma exposed to air in the presence of a concentration of sodium sulfathiazole of 200 mg. per hundred cubic centimeters supported but little growth when the length of exposure was sixty minutes or less (table 5). However, as shown in table 6, the three drugs at concentrations of from 10 to 100 mg. per hundred cubic centimeters exposed to air for thirty minutes showed growth on the pour plates at all concentrations to the same extent as in control plates without a drug.

COMMENT

In 1939 Milan Novak 7 in this country and Harington and Miles 8 in England suggested that the sulfonamide compounds might be useful in the preservation of stored blood. Novak's first communication was followed by a second paper of in which he definitely recommended the use of sulfanilamide in a concentration of 20 mg. per hundred cubic centimeters as a satisfactory preservative agent for whole blood over a period of ten days. However, although his tables show a bacteriostatic effect in many tubes, growth was present. ability of the organisms to grow after a period of days remained. Thus, in the case of Pseudomonas aeruginosa, he states that not even a concentration of 100 mg. per hundred cubic centimeters is sufficient to inhibit this organism beyond a fifteen day period. Hunwicke 10 was also able to demonstrate bacteriostasis but similarly noted small growth persisting over a period of a month or more. From these data it does not appear to us that such a procedure would be safe for general use. In 1940 Bécart and Philippe 11 suggested the use of sulfanilamide in the preservation of plasma, and Novak 12 has also extended this method to the preservation of stored plasma. Dr. Novak states: "In actual routine clinical usage over a two year period the method has been found to be completely satisfactory regardless of temperature (4 C. to 24 C.) or duration of storage." We question whether this proves the efficacy of the method, since the last 7,364 consecutive phlebotomies done by the American Red Cross at the Presbyterian Hospital Unit in New York City,13 using the closed system of collection with no preservative, have been done with only 1 instance of contamination. Here again we do not feel that the data presented support the conclusions drawn.

Our own experiments indicate that the sulfonamide compounds unquestionably exert a bacteriostatic effect on some organisms. This is best shown in the tubes exposed to contamination by air in which at a concentration of sodium sulfathiazole of 200 mg. per hundred cubic centimeters very little growth occurred. On the other hand, when similar tubes were specifically contaminated with known organisms, growth was persis-Because of the latter observation and the impossibility of controlling either the type or the extent of contamination, we believe that these agents are not sufficiently inhibitory under all conditions to make them safe preservatives for stored plasma.

Table 6.—Plasma Exposed to Air in Petri Dishes for Thirty Minutes (Two Sets of Experiments on Different Days, with Varying Concentrations of the Sulfonamide Compounds)

	Drug Concentration, Mg./100 Cc.	Colo	nies/Cc.
Sulfanilamide	. 10 20 60 100	5 10 25	Inn. Inn. Inn. Inn.
Sulfapyridine	. 10 20 60 100	10 10 85 5	Inn. Inn. 150 Inn.
Sulfathiazole	. 10 20 60 100	35 10 0 25	Inu. Inn. Inn.
Control agar plates	••••••	15 7	100 115
Control blood plates	•••••••••••	26 23	•••
Control plasma	•••••••••••••••••••••••••••••••	::	Inn. Inn.

CONCLUSIONS

- 1. The sulfonamide compounds tested have been found to exert some bacteriostatic effect in stored plasma.
- 2. This effect has not been sufficiently significant or consistent at the concentrations tested to recommend the use of the sulfonamide derivatives alone in the preservation of stored liquid plasma,
 - 620 West One Hundred and Sixty-Eighth Street.

^{7.} Novak, Milan: Use of the Bacteriostatic Drugs in the Preservation of Blood for Transfusion, Proc. Soc. Exper. Biol. & Med. 41: 210 (May)

or Blood for Franklusion, A.S. Storage of Blood for Emer-1939.

8. Harington, C. R., and Miles, A. A.: Storage of Blood for Emer-sency, Brit. M. J. 1: 1202 (June 10) 1939.

9. Novak, Milan: Preservation of Stored Blood with Sulfanilamide, J. A. M. A. 113: 2227 (Dec. 16) 1939.

^{10.} Hunwicke, R. F.: Sulfanilamide as a Preservative in Stored Blood, Brit. M. J. 2:380 (Sept. 21) 1940.
11. Bécart, A., and Philippe, B.: Le plasma humain sulfamidé, Presse méd. 47:535 (May 25) 1940.
12. Novak, Milan, to be published.
13. Taylor, Earl: Personal communication to the authors.

MEDICOLEGAL ASPECTS OF PHYSICAL MEDICINE

PREVENTION OF LEGAL CLAIMS AND HOW THE PHYSICIAN SHOULD SAFEGUARD HIMSELF

> JOHN S. HIBBEN, M.D. PASADENA, CALIF.

As long ago as 42 B. C., Publius Syrus said "Many

receive advice; only the wise profit by it."

Every member of the regular medical profession, general practitioners as well as the members of every specialty, uses either directly or indirectly physical methods in treatment. When he prescribes these methods, he assumes at once a medicolegal responsibility, just as he does in prescribing any other form of treatment.

Physical therapy, according to the Council on Physical Therapy of the American Medical Association, is a term employed to define the treatment of disease by various nonmedical and nonsurgical means. It comprises the use of heat, light, water, electricity, massage,

exercise and climate.

There are certain definite indications for the use of one or a combination of several of these physical agents in the treatment of disease. However, to depend solely on these agencies, to use them in lieu of better proved methods or to employ them without first having thoroughly studied the patient from the standpoint of diagnosis is harmful practice.

By law a physician is bound to bestow such reasonable ordinary care, skill and diligence as physicians and surgeons in the same neighborhood in the same general line of practice ordinarily exercise in like cases. A physician, therefore, must follow established methods of practice, and should he depart from recognized remedies or methods of treatment or diagnosis he does so at his own peril and risk. Should such departure result in injury to the person so treated, the physician will be liable for damages, however good his intentions may have been-but this must be proved. The law does not exist which expects physicians to be infallible -allowance is made for the possibility of human beings

A physician prescribing physical therapy may decline or refuse outright to render services if for any reason he should prefer not to do so. However, if he has agreed to do so he has assumed a contract and is liable for any damages which may result from failure to fulfil or complete his contract. On assuming or undertaking to diagnose and treat a condition, one contracts and agrees that he possesses a reasonable amount of skill and knowledge and that he will apply that skill with

ordinary care and diligence.

What are the medicolegal aspects to be considered when the physician delegates some member of a family, a practical, undergraduate or graduate nurse or office attendant or physical therapy technician (registered or unregistered) to carry out his orders, whether verbal or Just as with the surgeon, the physician is responsible for any negligence on the part of the person to whom he has assigned a duty, even though she is employed and paid by the patient. It behooves him, therefore, to see that his instructions are fully understood and that they will be carefully carried out. If the work of the nurse is a part of the service rendered by the physician and this service is rendered in the absence of direction by him, he is liable. In a hospital, the physician must give specific, preferably written, instruction

to the nurse or technician, and a failure to do so might well give cause for action against him. He may order the application of a hot water bottle; if it is a class A hospital, he assumes that the proper heat has been used (120 to 125 F. as the temperature of the water put into the bottle). Though this is assumed to be familiar knowledge among nurses, the proper and safe way would be for the physician to write a definite order stating:

1. The part of the body to which the hot water bottle is to be applied.

2. Whether the hot water bottle is to be in direct contact with the skin or whether there should be intervening material.

3. A word of caution if the weight of some part of the body is to be resting on the bottle (undue pressure might cause a circulatory ischemia resulting in a burn or destruction of the tissue).

4. Length of application and temperature of the water put in the bottle, with respect at all times for the will of the patient. If he or she says the bottle is too hot-remove it.

5. The bottle should not be applied if the patient is unconscious or asleep unless there is adequate supervision.

The same principles apply in substance to the use of other physical therapeutic energies: hot or cold applications of water, infra-red lamps, bakers, electric heating pads, ultraviolet radiation, short wave diathermy, paraffin baths and other mechanical agencies. Any physician who does not know the nature of and the therapeutic application of and indications for the energy he wishes to prescribe is not qualified and should not When it is prescribed, there should be a written order for its use. Patients are often sent to the physical therapy department of a hospital, or to the offices of lay technicians, with no order other than that they are to have some physical therapy. Here again I will say that a physician in prescribing for the patient agrees that he possesses a reasonable amount of knowledge and will apply that knowledge with care. In prescribing physical therapy it is assumed that he knows what form should be applied, and he should write and sign an order for this remedy just as he would be expected to do when sending his patient to a drug store for medicines. When a technician is left to administer treatment to the patient in the absence of instruction, it cannot be expected that the proper results will be secured; too much is left to chance. The patient will most likely become discouraged, and it is not surprising that so many finally land in the offices of the irregulars. After a few months the physician who has meant well enough may find himself called into court to answer charges of neglect.

A physical therapy department, whether in the hospital or out, should be in charge of a physician trained in physical medicine, and this physician should be assisted by registered physical therapy technicians. This would decrease medicolegal liability some 90 per cent and at the same time secure confidence on the part of the patient and divert the patient from the offices of the irregulars. A department run on such a plan would not be subject to the prejudice that is felt by many of the regular profession toward the therapeutic possibilities of scientific physical medicine. It is their confidence that the specialty of physical medicine wants; the confidence of the patient will follow. Happily, departments supervised in this manner do exist throughout the country, but there is need of many more.

I believe that the majority of medicolegal cases involving physical medicine are brought against members of the regular profession who merely dabble in physical therapy and are not so often brought against the physician who specializes in part or entirely in physical therapy. This belief is substantiated by data obtained from Dr. L. J. Regan, chairman of the Committee on Medical Defense of the Los Angeles County Medical Association, who says that during the past ten years only about 6 per cent of all claims in Los Angeles have been in the field of physical therapy; it is interesting to note that the specialist is not often charged with damage, as is the general practitioner.

The foregoing comments are applicable to our daily physical therapy practice. The physical therapeutist is vulnerable, and unless he is cognizant of these potential dangers he is liable to suit. The physician would do well to adopt an attitude of defense and consider every patient as a potential legal case. By this I do not mean to infer that he must be belligerent—he may be as gracious as the occasion demands but at the same time not forget to be cautious.

GENERAL PRECAUTIONARY MEASURES

The subject of legal safety may be considered from the point of view of both general and specific treatment. Of utmost importance is a complete history. A complete physical examination should be made and laboratory and roentgen examinations when indicated. Each treatment should be charted under the date administered, together with the kind and length of treatment, any changes that might have taken place in the condition of the part treated and any other significant data. The type of treatment, together with its limitations, possibilities and probabilities, should be fully explained to the patient at the beginning; hasty, unguarded statements regarding the prognosis should be avoided. A definite understanding as to the number of treatments required should be determined, together with the cost and convenience in payment of the obligation.

Patients should have privacy and should always be properly draped with clean linens. The physician should solicit and always accept the patient's statement as to comfort; he should emphasize in advance that if the treatment is uncomfortable, even to the slightest degree, the patient is so to notify the operator.

It is wise, unless especially qualified, not to use equipment unless it bears the stamp of approval of the Council on Physical Therapy of the American Medical Association. Particularly is this true in regard to photochemical and thermoelectrical equipment. Equipment should be inspected regularly every six months or preferably oftener by a capable supervisor. A signed certificate by the person making the inspection, including the serial number of the apparatus together with the date of inspection, is of value. Should any court action arise, this certificate will serve as evidence that the equipment was in proper condition. Automatic timing devices serve as additional safeguards.

Before the patient leaves the table the area treated should be inspected and any irregularities noted. Also patients should be instructed to call the physician if anything of an unusual nature develops before the next scheduled visit. This last precaution may be taken in the presence of a technician.

PRECAUTIONS TO BE OBSERVED IN THE USE OF SPECIFIC ENERGIES

Thermal radiation is used when superficial local heating is desired for penetrating effects of approximately 3 mm. in the region of the far infra-red, as produced by heated objects: bricks, hot water bottles, electric

pads, hot water or paraffin baths, electric heater or carborundum filaments in a suitable reflector.

The average cutaneous temperature is about 89.6 F., and an increase of about 18 F. is about the limit to which the temperature of the skin can be raised without the formation of a bleb or blister. It must be remembered, however, that some parts of the body surface are much cooler, in which case there is more latitude. To avoid injury to tissues one should keep in mind the temperature at which the various thermal modalities may be used. Burns will occur if there is an excessive absorption of thermal energy, and the final criterion is the patient's comfortable sensation to heat. With regard to thermal treatment one should express oneself in terms of degrees of heat; with the patient the word burn should never be used, nor should it be used in court—a better term would be counterirritation. Before treatment is begun, one would do well to inquire as to previous treatments-roentgen rays, various chemical substances or drugs taken internally-because of possible narcotic effects or because of a possible idiosyncrasy or allergy.

The Elliott machine, which circulates hot water through rubber applicators, used principally in body cavities, requires special training and experience for its safe use.

A hot air apparatus, Council accepted, has a rubber bag through which hot air circulates and is used in heating body cavities; there is a temperature range of about 130 degrees F.

With hot air blowers the air is circulated through a bag at a temperature not to exceed 130 F. When these blowers have been directed against the bare skin, burns have occurred.

A new device for a hot water bottle consists of an electrical metal heater which protrudes down into the water, so controlled that the water is kept at a constant temperature. In order to avoid burns, this should not be set for more than 125 F.

The automatic electric blanket is a blanket thermostatically controlled wherein the temperature is maintained at a constant level despite environmental changes.

Cooley compresses, Council accepted, keep a constant warmth in wet dressings by means of a waterproof electric pad.

Brown and Allen have described electrical cuffs and sleeves, controlled by accurate thermal regulating mechanisms; but this apparatus is still in an experimental stage of development.

Chemical heat is to be had in the form of eye pads and sinus pads. A uniform heat of about 108 F. to 114 F. is maintained for about an hour. Chemical crystals within these pads, when moist, give off heat as the result of chemical reaction.

These Council accepted devices, when in good working order, are safe and convenient means by which dry or moist heat may be applied; if they were used more frequently by physicians and hospitals better clinical results would be obtained without the hazard of burns. Burns may vary from a devitalization to complete destruction of the tissues involved. They may occur immediately or take place in several minutes, hours or even days after the original exposure. The degree of tissue destruction may vary from an erythema of first degree with blistering of the superficial layers of skin to coagulation and destruction of the deeper structures. These wounds become easily infected. They are indolent

in healing and often result in unsightly scars. Following infra-red exposure, a mottling of dark red spots over the area treated means that there has been too much absorption of heat, and it will be followed by edema of the tissue and finally by blistering. When any such accident as this occurs, legal advice should be sought immediately.

To date there is no better means of estimating the amount of heat to be given by means of short wave diathermy than the sensation of the patient; therefore, the degree of heat must be limited to that which produces no unpleasant sensation or pain. As symptoms of overheating there are pain, aching, soreness, weakness, edema and effusion. The limit of tolerance in inflammatory tissue is always lower than that of normal tissue. Here, again, it will be well to stress the need of knowing that the nervous and circulatory systems are intact. In treatments about the head, dizziness or giddiness is an indication for discontinuing the treatment. In heart disease, the occurrence of tachycardia would mean that treatment should be stopped. Contraindications must be carefully studied and heeded; after treatment has been instituted any untoward signs must be To keep out of trouble, such danger warnings must not be ignored.

Knives, keys, money, watches and other metallic substances should be kept out of the field of operation. Tables and chairs should have no metal parts. Beds equipped with wire or innerspring mattresses are a fire hazard.

When diathermy is prescribed for use in the home, the physician must remember that he is liable for accidents or bad results attendant on its use. To protect himself, therefore, he should see to it that the apparatus secured for such treatment is Council approved, that it is in good working order and that its operation is understood by the person who is to administer the treatment. In order more thoroughly to protect himself, he should have a trained technician go to the house to administer the treatment prescribed and to watch over the patient during the course of the treatment.

Fever therapy requires specialists in that field for its administration. Its value is well known, and soon it will become important from a medicolegal standpoint.

Ultraviolet therapy ranks near the top of the list as one of the causes for medicolegal action. It should, as a matter of fact, be one of the safest of energies. When burns have occurred it has been found that there is far less permanent tissue destruction than results from the use of other energies. In order to safeguard oneself when using ultraviolet therapy, individual lamps should be standardized, since they vary in erythemal potency. Rooms in which treatments are given should have adequate ventilation. Goggles or a shield should be used over the eyes of the patient. The genitalia should be covered; the breasts of women also should be protected. Hypersensitivity and the patient's individual reaction to ultraviolet therapy must be studied; as an example, senile and keratotic skins may predispose to the development of cancer. Minute attention must be paid to the dose that the patient can take safely. This individual limit of safety must be determined before the patient is subjected to treatment, and subsequent treatments must be governed according to the observations made. Diabetic patients often react unfavorably to irradiation, with resulting local and general petechial hemorrhages, but it is also a form of treatment which has been shown

to be of real value in reducing blood sugar levels. One of the really important considerations is provision for the sounding of a time clock to measure the length of exposure.

From a medicolegal standpoint, if an energy is to be used the physician should know that it has been used and been proved an advantage by other authorities. Some of the absolute and proved indications listed by the Council on Physical Therapy of the American Medical Association for the use of ultraviolet radiation are for prophylactic and curative effects in rickets, infantile tetany, spasmophilia and osteomalacia. Other relative indications may be found in anemia, hemophilia, chlorosis, tuberculosis and arthritis. The user of these energies will do well to prescribe them when indicated, but I should like to repeat that he must have full knowledge of the various forms and technics of application, must be well aware of the hazards involved and must be wary with regard to experimentation; otherwise he may find himself with legal problems to settle.

MANIPULATION OF DEFORMED JOINTS

Manipulation of deformed joints is a form of physical therapy which is often followed by legal action. A mechanical apparatus for manipulative procedures on arthritic or deformed joints is packed full of dynamite. More than ordinary care should be practiced. The danger of producing fractures of atrophied bones is ever present, and permanent ankylosis sometimes results. Before operations of this nature are undertaken it would be wise for the physician to secure data which might seem entirely too detailed-measurements alone are not sufficient-actual photographs should be taken to substantiate the measurements, and any significant observations recorded. A defendant coming before a court, council and jury who has not a complete record of the conditions when he started treatment has little argument to offer in his own defense and has as good as lost the case before entering court.

One might think that there is little trouble to result from treatment by massage. Even in this there are certain precautions to be observed. One must not allow the patient to be exposed to a chill when heat has been applied. When the area to be massaged is covered with hair the part should be shaved, or particular care should be used to avoid irritation which might result in a folliculitis or pustular infection, with indolent response to treatment. Massage varies enough in type so that here again a definite prescription should be written, calling for a stroking, kneading, percussion or vibratory method. Massage, too, has its contraindications. These are found in tumefactions in which there may be a malignant condition, in dermatoses, in inflammatory conditions such as swollen and painful joints and in cases of systemic disease with fever. There are many contraindications which, if not heeded, could easily lay grounds for legal action.

HYDROTHERAPY

Hydrotherapy is another form of physical therapy which may be so simple as to call only for early morning hikes barefooted through dew-covered grasses and on the return from such a jaunt drinking as much water as one can hold. Baruch described hydrotherapy as the application of water in any form, from solid and fluid to vapor, from ice to steam, internally and externally. In its place, one may expect good results

from treatment of this kind; but one must not be so optimistic as to disregard dangers which may be encountered.

PARAFFIN BATH

The paraffin bath is designed to facilitate and simplify the application of heat over the joints and other affected parts of the extremities. The temperature of the melted paraffin should range from 120 to 130 F., and 20 per cent should be liquid petrolatum, that is, 4 parts paraffin and 1 part liquid petrolatum. Implicit instructions should be given patients with regard to preparing this in the home to use a double boiler when melting the paraffin and to turn out the fire under the container before the mixture is applied. The patient who does not foresee the possibility of burns must be forewarned. A bath thermometer may be used to determine the temperature. For those who have no thermometer it is safe to use the mixture after it has cooled to a point at which a slight scum forms over the surface. fingers should be held apart when the hand is immersed; after the paraffin has started to set, the part dipped should be held quiet to avoid cracking of the paraffin, for when this happens subsequent immersion may cause burns. It is important to time these treatments. They are to last, as a rule, from fifteen to forty-five minutes. Mixtures of paraffin and oil may be used repeatedly without changing, since the material sterilizes itself. Hair over any of the parts treated should be shaved.

There are special apparatuses ¹ on the market for the paraffin bath, constructed with special heating elements, and with positively regulated controls for temperature and time limit.

GALVANIC CURRENT

Galvanic current of but a few milliamperes may cause tissue destruction if concentrated on a small area. Galvanic current is used to drive certain metals or drugs into the tissues for their superficial penetration and later absorption by the blood stream. While the penetration of these ions is slight, there is danger of producing a tattoo if the current is introduced from the positive pole through a steel needle. The physician who attempts epilation is laying himself open for possible court action.

COLONIC THERAPY

Much may be said of the dangers which may arise from the use of colonic therapy. The uses and abuses of this form of treatment are many; yet in trained hands and with the proper technic it is a valuable adjunct to the treatment of some diseases. All that is required by way of pressure is ½ pound, which is the equivalent of 1 pound of water held 13½ inches high. A douche held 4½ feet high will give a pressure four times greater than is needed, and the pressure is increased 1 pound for every 27 inches that the container is raised. Because of the likelihood of rupture of diverticula, one can readily understand the importance of having a given elevation and a controlled pressure.

Stiff colon tubes have been known to rupture thin-walled diverticula. The so-called high enema has been a great talking point with irregulars and with some of the regular profession. It has been found that the tube seldom reaches farther than the splenic flexure, and most often it curls up before reaching that point. It so happens that the normal gradient for fluids is from the rectum to the cecum; therefore, nothing is to be gained by trying to insert a tube any depth beyond the rectum.

1. These may be obtained from the Thermo-Electric Company, 717 Frankfort Avenue, Cleveland.

The major contraindications in colonic therapy are severe cardiac disease, aneurysm, advanced arteriosclerosis, severe anemia, high fevers, exophthalmic goiter, gastrointestinal ulcer (hemorrhage or perforation), great debility from any cause, and anal disease (such as severe hemorrhoids, pruritus, eczema or stricture).

CONSULTATION

It is a wise man who will call for consultation when a course of treatment is not clear. It is well to invite other opinion as a check on one's own judgment. As said before, the law requires that a physician bestow such reasonable ordinary care, skill and diligence as is prevalent among physicians and surgeons in the same general line of practice. To seek consultation is to use reasonable and ordinary care and may be considered a precautionary measure.

INSURANCE

Every physician using physical agents should be well covered with a standard policy in an A 1 company. He may seek the advice of his local county medical society as to which insurance carrier is the most reliable and offers the best coverage. Generally the premium varies according to the apparatus used. Many companies do not offer liability coverage for those using physical therapy equipment. It has been said that during the five year period that ended Dec. 31, 1940 there were approximately 1,214,200 claims filed by security workers of the Work Projects Administration and about 201,000 claims filed by civil employees of regular government establishments. Apart from roentgen and orthopedic practice, physical therapy stands at the head of the list for the number of damage suits, also for the number of judgments rendered the plaintiff. This report has not been reviewed by the U. S. Employees Compensation Commission, and any statement or expression of opinion contained herein is my own and does not necessarily reflect the point of view of the commission. These numbers do give some idea of the fact that people are what might be called claim minded and that it behooves the physician to be well protected.

BILLING THE PATIENT

In the face of unfavorable results which might lead to legal action careful judgment should be used with regard to the total charge. It may be wise not to bill immediately, it being remembered that time is often a great mental and physical healer; however, a bill should be sent. Only under special conditions should the physician fail to send his bill; but to cancel the bill entirely might easily be assumed as evidence of guilt or neglect on his part. One statement should be sent, the fact being noted on the ledger. The receipt of such a bill will arouse a response on the part of the patient, and the physician will then be in a position to judge the attitude of the patient. He may have occasion to consult his insurance carriers without delay.

CONCLUSIONS

When physical therapy apparatus is used it should be Council approved.

The physician's assistants should be well trained, registered technicians.

The physician assumes a medicolegal responsibility when he prescribes any form of physical therapy. His instructions should be explicit and preferably in writing.

Consultation is reassuring and is valuable as a safe-

Medicolegal entanglements would be reduced to a minimum if members of the profession would exercise every precaution and practice only the well established and safe methods.

201 North El Molino Avenue.

CYCLOPROPANE ANESTHESIA AT THE ROCHESTER GENERAL HOSPITAL

REVIEW OF 7,120 CASES LEROY SAHLER, MD. JOHN F. KELLOGG, MD. AND RICHARD B. PHILLIPS, MD. ROCHESTER, N. Y.

It has now been twelve years since Lucas and Henderson 1 of Toronto introduced cyclopropane to the medical profession and seven years since the first clinical report by Stiles, Neff, Rovenstine and Waters.2 In 1939 the Council on Pharmacy and Chemistry of the American Medical Association reviewed the work that had been done up to that time with cyclopropane in anesthesia and concluded that this agent was of value in the hands of competent anesthetists. The Council suggested, however, that more reports of anesthesias carried out with cyclopropane would be necessary before the proper place which cyclopropane might have m anesthesia could be accurately determined. purpose in this paper is to present a review of 7,120 cases in which cyclopropane has been used at the Rochester Hospital during the years 1935-1940 inclu-

Table 1 shows the rate of increase in the use of cyclopropane at our hospital, by years. In the first year that we used this agent, 1935, the number of cases was 107; last year (1940) the number was 1,639. During the past two years cyclopropane has been used in nearly half of all our inhalation anesthesia, as may be seen in table 2. In 1939 42 per cent of all gas anesthesia was with cyclopropane, and in 1940 45.5 per cent of all inhalation anesthesia was done with this This year the figure will probably be greater than 50 per cent. These figures compare nicely with Hathaway's s statistics, from Waters' clinic, who stated that "slightly less than half of 4,668 anesthetic administrations at the Wisconsin General Hospital in 1938 were done with cyclopropane." Guedel 4 has recently reported the results of more than 8,000 cases conducted by himself and by Treweek and McCuskey. These men believe that cyclopropane is as safe as any other anesthetic in the hands of trained men. Guedel emphasizes the fact that one must study cyclopropane anesthesia assiduously if one hopes to master the technic of administering it safely. Griffith 5 of Montreal has just published his results in 5,000 cyclopropane anesthesias. He now uses this gas in more than 90 per cent of all inhalation anesthesia. Of his large series he felt that not more than three postoperative deaths could in any way be attributed to cyclopropane, and there were no immediate deaths. Like Guedel, he obtains full abdominal relaxation with cyclopropane alone, and he has used this gas in 586 upper abdominal cases alone without ether or abdominal block.

Bogan 6 in 1939 reviewed 1,000 consecutive anesthesias which he had conducted and found that he had

used cyclopropane in 643 instances.

Before describing our own results with cyclopropane we will consider a few recent papers on various aspects of anesthesia conducted with this gas. Among the assets which may be attributed to cyclopropane are the following: 1. The induction period is comparatively fast and pleasant. 2. It may be given with a high concentration of oxygen. 3. The depth of respiratory excursion may be controlled, thus making the gas an ideal anesthetic for lung surgery. 4. Under full anesthesia there is quiet breathing and complete relaxation. As liabilities may be listed: 1. It is explosive in anesthetic concentration. 2. There is somewhat more bleeding under this anesthetic than under most others. 3. There is danger of respiratory paralysis when complete relaxation is obtained. 4. The patient passes from plane to plane of anesthesia faster than with almost any other agent.

Many hospitals throughout the country are not using cyclopropane because of its explosiveness. It is true, of course, that there have been several unfortunate instances in which this gas has exploded, and deaths have resulted. Horton of the Massachusetts Institute of Technology, who has been investigating this subject in great detail, says that statistics are inadequate to show whether any one gas used in anesthesia is more

TABLE 1—The Use of Cyclopropane at the Rochester General Hospital by Years

		Cases
1935		107
1936.		825
1937.		$\frac{1,576}{1,509}$
1938		1,503
1939.		1,464
1940.		1,639
Total		7,120

TABLE 2-Use of Cyclopropane as Compared with Other Inhalation Anesthesia During 1939 and 1940

	1939	1940
Total number of	4,221 3,408 1,464	4,699 3,602 1,639
Percentage of cyclopropane anesthesias all inhalation anesthesia.	42%	45 5%

explosive than the others. He points out the importance of flooring, shoes, wiring, electric switches, intercoupling, clothing, electrostatics, humidity, furniture, pads, pillows and the anesthesia machine itself in the cause and prevention of anesthetic explosions. On the other hand, as pointed out by Jones, Kennedy and Thomas,8 of the United States Bureau of Mines, the

^{1.} Lucas, G. H. W. and Henderson, V. F. A. New Anesthetic Gas-Cyclopropane, Canad. M. A. J. 21: 173 175 (Aug.) 1929.

2. Stiles, J. A.; Neff, W. B.; Rovenstine, E. A. and Waters, R. M. Cyclopropane as an Anesthetic Agent, Anesth & Analg. 13: 56 60 (March April) 1934.

3. Hathaway, H. R. The Use of Cyclopropane in the Wisconsin General Hospital in the Last Year, South M. J. 33: 45 50 (Jan.) 1940.

4. Guedel, A. E. Cyclopropane Anesthesia, Anesthesiology 1: 13-25 (Jul.) 1940.

5. Griffith, H. R. The Prevention and Treatment of Complications During Cyclopropane Anesthesia, Anesth & Analg. 19: 141-144 (May-June) 1940. During Cy June) 1940

⁶ Bogan, J B. Cyclopropane and Other Agents in Anesthesia. A Brief Comparison and Practical Considerations in 1,000 Consecutive Anesthesias, Anesth & Analg. 18: 186 192 (July-Aug.) 1939.
7. Horton, J. W.: The Problem of Preventing Anesthetic Explosions, Anesthesiology 2: 121-137 (March) 1941.
8 Jones, G. W., and Thomas, G. J.: The Prevention of Cyclopropane Oxygen Explosions by Dilution with Helium, Anesthesiology 2: 138 143 (March) 1941. Jones, Kennedy and Thomas?

explosibility of cyclopropane in anesthetic concentration may be considerably diminished by the addition to it of nitrous oxide, air, helium and carbon dioxide. Jones and Thomas o now advocate the administration of a cyclopropane-helium-oxygen mixture in the ratio of 25-50-25 as being of definite value in preventing explosions. Greene, 10 who recently reviewed 230 cases of anesthetic explosions for the American Society of

TABLE 3 .- Type of Surgery in 3,103 Cases of Cyclopropane Anesthesia at the Rochester General Hospital During 1939-1940

Appendectomy	•	734
Gynecology .		729
Orthopedic surgery		418
General surgery		409
Upper abdominal surgery		309
Proctology .		180
Thyroid surgery		137
Gendourinary		Ği
Cesarean section		44
		44 30 30
Neurosurgery		90
Otolaryngology		30
Surgery of the lung		16
Ophthalmology		6
• • • • • • • • • • • • • • • • • • • •		
Total		3,103

Avertin with amylene hydrate was used as a basal anesthetic in 111 cases, of which 92 were toxic thyroid cases.

Endotracheal intubation was performed in 71 instances
In addition to the 734 appendectomies there were 141 appendixes removed incidental to cholecystectomy, cophorectomy, hysterectomy and other operations.

Anesthetists, finds that 40 per cent of these accidents occurred in the presence of electrical machines such as diathermy apparatus and endoscopic, x-ray or cautery instruments. Another 59 cases (25.6 per cent), he says, could be attributed to suction apparatus. This means then that 65 per cent of all these explosions might have been prevented, and it must be remembered that the explosions just referred to involved all types of gas anesthesia, not just cyclopropane alone. Ĝreene was able to find no case in which cyclopropane-air exploded, a fact which may have some significance. We in Rochester feel fortunate with regard to our relative humidity, as our position on Lake Öntario gives us a relatively high humidity, a fact which tends to prevent static electricity explosions. It is interesting to know that there has never been a static explosion in Australia and only one in England, facts which speak for themselves. Greene states that in the series which he studied the relative humidity in sixty-three static explosions was lower than 50 per cent in 32 cases. His conclusions are that there is no single effective way in which to prevent explosions but that a combination of factors must be considered, beginning first with the intelligence of the person administering the gas. Explosions have occurred under every known method of protection but frequently in the presence of apparatus which should have been excluded from the operating room or owing to faulty technic in administering the gas.

The question of excessive bleeding in the surgical field has been the subject of investigation. Some surgeons seem to be definitely against the use of cyclopropane on this account; others pay little or no attention to it. Waters 11 has shown that cyclopropane does cause oxygen saturation of the venous blood which will equal arterial blood. Associated with this there is an

increase in capillary bleedings which is believed to be due to compensatory sympathicotonia and hyperadrenia. Abramson, Grollman and Schwaitz,12 using the plethysmographic method, have found that there is an increase in blood flow through the hand and forearm during cyclopropane anesthesia. This work confirms the known observation that cyclopropane does diminish vasomotor tone. Whether or not this decrease in arteriolar tone is sufficient to interfere with surgery is a matter for the individual surgeon to decide. Our own surgeons feel that the advantages in using cyclopropane greatly outweigh the slight to moderate excess oozing which frequently does occur. We must remind ourselves of the work of Mann,13 however, who has shown that even with ether there is an increase in the blood flow of 64 per cent in the peripheral arteries, under light anes-Guedel 4 speaks of the "arteriolar-capillaryrefill time" or the "A-C-R" sign, which he believes is of special value in determining circulatory efficiency under cyclopiopane anesthesia. The A-C-R refers to the refilling of the capillary bed when pressure is exerted on the skin of the forehead, and it remains the same regardless of the depth of the anesthesia. It slows perceptibly, however, in the presence of shock or loss of blood. Guedel states that, if the A-C-R is satisfactory even in the presence of an arrhythmia, poor pulse or apnea, the patient is not in immediate dangei.

We have used cyclopropane in almost every type of surgery, as may be seen by referring to table 3. Of the 3,103 cyclopropane cases during 1939-1940 abdominal surgery was done in just exactly 50 per cent. It has been necessary to supplement cyclopropane with ether in 6 per cent of the cases of abdominal surgery, although frequently but small amounts of ether were used. We have found that, in the great majority of cases in which we have used cyclopropane in abdominal surgery, relaxation can be obtained and maintained with cyclopropane alone. We agree with Guedel 4 that it is possible to obtain relaxation with cyclopropane comparable to that obtained with spinal anesthesia. This almost always means, however, that apnea will supervene and that for at least part of the anesthesia it will be necessary for the anesthetist to control the patient's respirations passively. As is well known, apnea may occur at any time during cyclopropane anesthesia, during induction or at any later phase. Passive respiration can be kept up by the anesthetist for some considerable time when necessary, even for three quarters of an hour or longer. When active respiration reappears it must be amplified in most cases, as pointed out by Greeley,14 by passive respiration in order to insure adequate pulmonary ventilation. Inadequate active ventilation and respiration is much more dangerous than passive respiration with its hyperventilation. One must pay special attention to the excretion of cyclopropane. The high oil-water solubility ratio permits the cyclopropane to be absorbed by the body fats readily, and, since the gas must first pass through the blood plasma in reaching the fats and then back through the plasma in being excreted, it follows that there is built up in the fats a high proportion of cyclopropane which must

^{9.} Jones, G. W; Kennedj, R E, and Thomas, G. J Explosive Properties of Cyclopropine The Prevention of Explosions by Dilution with Inert Grees. Report of Investigations, R. I. 3511, United States Department of the Interior, Bureau of Mines, 1940 10 Greene, B A: The Hazard of Fire and Explosions in Anesthesia, Anesthesiology 2: 144 160 (Minch) 1941.

11. Waters, R M · Present Status of Cyclopropane, Brit M. J 2: 1013 1017 (Nov. 21) 1936

^{12.} Abramson, D. I; Grollman, A I, and Schwartz, A L. The Influence of Cyclopropane upon the Peripheral Blood Flow in Man, Anes thesiology 2: 186 190 (March) 1941

13. Mann, T. C, Essex, H. E, Herrick, J. F, and Baldes, E. J. The Flow of Blood in Relation to Anesthesia and to Operations, Western J. Surg. 43: 177-184 (April) 1935

14. Greeley, Paul, cited by Guedel.

not be overlooked. In the latter part of anesthesia this factor is not so important, as a leveling off process takes place following the decreased amounts of cyclopropane given after full anesthesia has taken place. When active respiration returns, one may even assist it by adding small amounts of carbon dioxide to the already diluted gas. Some anesthetists recommend the use of carbon dioxide routinely after operation, but we do not use it unless we feel that there is some special indication for it.

One of us ¹⁵ has recently reported from this hospital the administration of cyclopropane in 94 cesarean sections. To these 94 cases we now add 44 done under cyclopropane during 1939 and 1940, making a total of 138. We have found that cyclopropane is of special merit in cesarean section. The patients do not perspire as they used to, the babies seldom have to be resuscitated, and it is possible to flush oxygen through the mother's blood and into the baby just before the cord is cut. We have had only 4 deaths in 423 cesarean sections in the last twelve years, and none under cyclopropane. One death was due to embolus on the thirteenth postoperative day.

It is of the utmost importance that the patient be provided with a good airway during cyclopropane anesthesia. Relaxation of the tongue and shallow chest excursions make it imperative that the patient receive adequate amounts of oxygen. Our custom is to introduce an ordinary flat pharyngeal airway in every case as soon as anesthetization has been obtained, which is usually from four to seven minutes after the beginning of induction. Griffith ⁵ used endotracheal intubation in 1,567 of his 5,000 cases, or nearly 1 case out of every 3. In our last 3,103 cases we used the endotracheal technic in 71 instances. However, we use the method a good deal more than this figure would indicate, as we are not counting our nitrous oxide and ether cases in this series. We are using the intratracheal tubes more and more, but up to the present we reserve intubation for the more difficult cases, and we insert the tubes usually in the beginning, after induction, rather than after surgery has begun. We use the tubes in all lung surgery, and in work around the throat, neck and mouth.

It has been found that cyclopropane combined with basal avertin with amylene hydrate makes an excellent combination anesthesia for toxic thyroid surgery. We used this technic in 92 cases with excellent results. Avertin with amylene hydrate was used in a further 19 cases in combination with cyclopropane when it was considered wise to bring the patient to the operating room under basal anesthesia. It has been found that cyclopropane is very useful as an adjunct to spinal anesthesia. When a patient receiving spinal anesthesia is too alert and nervous or when the spinal agent is beginning to wear off, one may give comparatively small amounts of cyclopropane and at the same time keep up the concentration of oxygen which is so desirable in spinal anesthesia.

We agree thoroughly with Griffith, Guedel and Vaters and Schmidt ¹⁶ that cyclopropane is the anesthetic of choice in poor cardiac risks. We have also found that Hathaway's figures on respiratory morbidity are well founded. He states that following cyclopropane, ether and nitrous oxide anesthesia the percentage morbidity in chest complications is 1.08, 2.06 and 2.17.

15. Sahler, S. LeRo): Anesthesia in Cesarean Sections During Twelve Years at the Rochester General Hospital, Anesth. & Analg. 18:80 81 (March-April) 1939.

16 Waters, R. M., and Schmidt, E. R: Cyclopropane Anesthesia, J. A. M. A. 103: 975 983 (Sept. 29) 1934.

At the Rochester General Hospital we use the carbon dioxide absorption technic in nearly every case. However, there are times in cyclopropane anesthesia when one wants to let the patient have his own carbon dioxide or to supply him with some. The use of the carbon dioxide absorption technic with the closed system allows us to save cyclopropane, which is, as is well known, an expensive gas. After anesthesia has been obtained one may use as little as 40 to 150 cc. a minute to maintain anesthesia, with occasional supplements of larger amounts at intervals, depending on circumstances. A basal flow of oxygen of from 250 to 500 cc. a minute is constantly maintained. We believe that it is possible to give as many anesthesias with 10 dollars' worth of cyclopropane as it is with 10 dollars' worth of nitrous oxide.

Preoperatively we use morphine, scopolamine, soluble pentobarbital, seconal (sodium propylmethylcarbinylallybarbiturate) and combinations of these drugs, as we found out long ago that a much smoother anesthesia is obtained if the patient comes to the operating room under proper medication. Induction is easier, and the deep relaxation necessary for certain abdominal surgery is obtained with greater security. Robbins thas considered premedication in detail, and he has shown that if barbiturates are given preoperatively there is less tendency toward the development of arrhythmia. Cyclopropane does not abolish muscular tone when given to a depth necessary to establish complete relaxation, as does ether. For a detailed account of the administration of cyclopropane under various circumstances we refer the reader to Guedel's paper.

As stated previously, we introduce an airway in every case as soon as anesthesia has been induced. We have found that helium is often of considerable help in carrying the cyclopropane and oxygen through a compressed trachea or other obstruction to the airway. We also use helium occasionally toward the end of an operation, particularly a longer one.

Fortunately, in cyclopropane anesthesia respiratory arrest comes on before cardiac failure. This must be treated by passive respiration until active breathing We feel that as long as the pulse remains over 50 the patient is not in immediate danger, but with slowing of the pulse we advance the oxygen intake. According to Allen, Stutzman and Meek, 18 cyclopropane renders the heart sensitive to epinephrine. The result is that small amounts of epinephrine which are liberated during the excitement of coming to the operating room, and which ordinarily do not have any particular effect, act and produce arrhythmias. Extrasystoles are not at all unusual in this type of anesthesia, but they are not cause for alarm if respirations are even, if the pulse is over 50, and if the A-C-R reacts properly. It is well known now that one must not give drugs preoperatively that increase sympathetic tonus.

We find that cyclopropane is well tolerated by all age groups and we have no hesitation in using it with very old patients.

Finally, a few words about "cyclo shock." We have noticed many times now that a patient who has had what might be called moderate surgery with an average amount of cyclopropane will sometimes go into collapse thirty minutes to three hours after being taken back

¹⁷ Robbins, B. H.: Preanesthetic Medication, Arch Surg 40:1046 (June) 1940.
18 Allen, C. R.; Stutzman, J. W., and Meek, W. J. The Production of Ventricular Tachycardia by Adrenalm in Cyclopropane Anesthesia, Anesthesiology 1:158 166 (Sept.) 1940

to his room. This collapse can always be prevented or at least alleviated in large measure by the exhibition of intravenous dextrose immediately on returning to the patient's room. We use intravenous fluids in good measure in all cases of cyclopropane anesthesia of any duration and when the surgery has been of any magnitude. Since employing these prophylactic measures we have found fewer cases of "cyclo shock."

POINTS TO BE CONSIDERED

The following points are, in our opinion, the more important ones to be considered in cyclopropane anesthesia:

1. Maintain an open airway. Use a pharyngeal tube in all cases, and an endotracheal tube when the occasion warrants it.

2. Always be on the alert for apnea, and, when it arises, maintain passive respiration until active respira-

tion reappears.

3. In induction, adjust the mask tightly before opening the cyclopropane valve. Fill the bag half full of oxygen, and after the patient has had a few breaths introduce cyclopropane at the rate of 600 to 700 cc. a minute. After anesthesia has been established, cut down the cyclopropane flow to 40 to 150 cc. a minute but keep the oxygen flow at 250 to 500 cc. a minute. Introduce larger amounts of cyclopropane, depending on relaxation and breathing. A good level of anesthesia will be reached when the muscles of the face and neck are relaxed, when breathing is slow and rather shallow and when the abdominal muscles are soft, as reported to the anesthetist by the surgeon.

4. Do not administer sympatheticotonic drugs pre-

operatively.

5. Give adequate preoperative medication.

6. Do not use any more cyclopropane than is necessary; the larger the amount used, the greater will be the degree of "cyclo shock."

7. Be on the watch for "cyclo shock" during the first half hour to four hours postoperatively and administer adequate amounts of acacia, dextrose and saline solution to all patients who have had cyclopropane in major surgery which has lasted longer than the average time for the given procedure.

8. When the operation has been of considerable duration, always use carbon dioxide inhalation intermittently

for from twenty-four to forty-eight hours.

9. Use the carbon dioxide absorption technic in giving cyclopropane routinely but not exclusively. Carbon dioxide is useful during cyclopropane anesthesia at times.

10. Helium is useful as a carrier of cyclopropane and oxygen through a partially obstructed airway. It is also of value in decreasing the explosibility of the cyclopropane-oxygen mixture.

11. Have suction available, conducted through the wall of the operating room and not obtained by means

of a suction machine close at hand.

12. Remember, a pulse rate below 50 indicates that the patient has had sufficient cyclopropane; it does not mean that the patient is in a dangerous position, but oxygen should be given at once in full concentration.

13. Ascertain in every case before operation whether the cautery or x-ray or endoscopic apparatus is to be used; if so, use another gas if inhalation anesthesia is required.

14. There has been no mortality in the 7,120 cases, but there has been an influence by cyclopropane on morbidity, we feel sure. We do not feel that a single case of death has been due to cyclopropane alone.

15. There is no hard and fast rule in the conduct of cyclopropane anesthesia. Each case must be handled individually and as an entity in itself. With reasonable experience the technic of cyclopropane anesthesia is not difficult; but it does require assiduous attention to the various points enumerated.

Medical Arts Building.

THE CONTRACEPTIVE SERVICE OF THE DEPARTMENT OF HEALTH, CITY OF NASHVILLE

GILBERT W. BEEBE NEW YORK

JOHN OVERTON, M.D. NASHVILLE, TENN.

In November 1937 the health department of the city of Nashville opened a contraceptive clinic for indigent women. Health and economic conditions among the underprivileged of Nashville accentuated the need for lessening the high frequency of conception in this group. Appreciation of the difficulties of prescribing diaphragm and jelly for indigent multiparas led to the decision to provide a substitute method for women difficult to fit or otherwise unable to employ the diaphragm. Foam powder was chosen for its apparent simplicity, its low cost and its reported effectiveness in early trials elsewhere. Although the physician in charge of the clinic exercised no rigorous selection of cases, he did tend to prescribe foam powder for the apparently less intelligent and for patients having a relaxed pelvic floor or presenting other conditions prejudicial to successful fitting, insertion or retention of the diaphragm in situ.

The first clinic admitted only white patients, but two clinics for Negroes were opened in 1940. Under a policy of expansion and decentralization the original clinic was closed in April 1940, after having admitted 733 patients, of whom 6 were referred for sterilization. The active cases among them were distributed to the decentralized clinics, of which there were four on June 1, 1941. Prior to this date 1,607 white and Negro patients had been given contraceptive advice.

A sample of the histories was examined in 1938 by the National Committee on Maternal Health with the expectation that the pioneer service might furnish data of considerable importance for clinical contraception. The service appeared exceptional in its provision of two methods, its integration with other public health services and its exceptionally intensive follow-up by public health nurses. The present report summarizes the experience of the original clinic and reaches some conclusions about the relative usefulness of the two methods prescribed. The latter takes on special interest in the face of the current effort by birth control enthusiasts to encourage widespread use of foam powder.

THE PATIENTS

Contraceptive services are seldom, if ever, patterned along the lines of biologic experiments, with an "untreated" sample for control, and it has become customary to evaluate their influence by contrasting the

From The National Committee on Maternal Health, 2 East 103d Street, New York, and the Department of Health, City of Nashville, Tenn. 1. It should be borne in mind that the service was not planned to test the two methods for the particular set of patients. Consequently, from the standpoint of experimental control the data present shortcomings which are of little or no relevance to the efficiency of the service qua service.

fertility of patients before and after admission. this study the histories prior to admission must be examined intensively not only to facilitate comparison with the later period but also in order to explore the comparability of the two groups advised in the use of different methods.

Table 1.-Characteristics of Patients Given Contraceptive Advice, by Method Prescribed

	Method P.	rescribed	
Characteristic	Diaphragm and Jelly	Foam Powder	Total
Number of women Mean age at admission Mean duration of marriage at admis	410	317	727
	25 6*	28 8	26 7
Mean educational attainment of wife t	73	9 5	83
	76	6 9	74
Percentage with privately employed husbands Percentage with husbands employed	65	57	61
on relief projects Mean weekly family income, in dollars	17	21	19
	11 2	10 8	11 0
Fercentage on home relief Mean gravidity	21	27	23
	3 5	4 6	4 0
Mean parity Mean family size Fertility index t	3 2	4 1	3 6
	4 9	5 8	5 3
Percentage with contraceptive experience	0 41	0 41	0 41
	65	65	65

Values in boldface are significantly different in the statistical sense

A summary of the main features of these histories is given in table 1 separately for each method group. Horizontal pairs of values in boldface may be regarded as significantly different in the statistical sense.2 Five of the differences merely reflect the fact that the foam powder patients were, on the average, two or three years older than those advised to use diaphragm and ielly. The differences in duration of marriage, gravidity, parity and family size repeat the age difference. The important point is that relative fertility, as measured by births per year of marriage, is the same for the two groups. Patients who had experienced pregnancy and childbirth more than the average number of times more frequently presented apparent contraindications to the diaphragm prescription and thus entered the foam powder group in greater numbers. The possible implications of this selection are manifold, but they furnish no reason for regarding the two groups as essentially different in inherent fecundity or in the desire and ability to control conception

The superior education of the diaphragm and jelly patients is also consistent with the process of selection but difficult to evaluate. There is a difference of seventenths grade between the two means, and the diaphragm and jelly cases include a third with more than eight years of schooling in comparison with a fifth of the foam powder patients. While the difference between means is not large, the proportions entering high school suggest that the two groups may differ in motivation, intelligence and other characteristics associated with contraceptive efficiency. On the other hand, the homogeneity of the two groups with respect to relative fertility and resort to contraception is inconsistent with the assumption of effective differences in contraceptive interest and skill. The educational differential seems an insufficient basis for regarding the two groups as incomparable.

Although the two groups are not entirely homogeneous, therefore, the statistical analysis suggests no reason why there should be any appreciable differences in fertility under similar circumstances. To the extent that this interpretation is justified, the subsequent experience of the two method groups provides a direct test of the relative suitability of the two methods for the type of patient admitted to the service. Since their comparability is not firmly established,3 conclusions must be regarded as tentative.

The relative fertility of several other groups of contraceptive patients with little previous contraceptive experience is given in table 2 by residence and color The Nashville rate of 041 is well within the range of 040 to 0.47 obtained for samples drawn from areas of extremely high fertility. A majority of the patients avowed at least some effort to control conception, the proportions, however, being above average for those favored by superior education, income and employment The fertility rates of table 2 show how little their previous contraceptive endeavors had lowered the fertility of these patients before admission to the service.

ACCEPTANCE OF PRESCRIBED METHODS

Only 5 per cent of the patients failed to try either diaphragm and jelly 4 or foam powder and sponge 5 as prescribed, and the difference between the two groups is insignificant. Immediately thereafter, however, the foam powder patients displayed less willingness to employ the prescribed method, as may be seen in the accompanying chart. This shows, for example, that after six months of exposure (perhaps eight or nine months after admission) less than 55 per cent of the foam powder patients were still using the prescription in comparison with more than 75 per cent of the diaphragm and jelly patients. At the end of twelve months of exposure the percentages had fallen to about 35 and 60. The great discrepancy between the two curves is partly illuminated by the reasons for discontinuance, shown in table 3. One important factor is reported as

Table 2-Comparative Fertility of Patients of Little Contraceptive Experience Prior to Admission to Several Contraceptive Services, by Residence and Color

Residence, Series and Color	Births per Lear of Married Life
Urban Aashville, Negroes . Aashville, whites Puerto Rico, unspe	0 46 0 41
J S Fertility and commercial Puerto Rico J. Pub. Health & Trop Med, to be published	0 41
Rural Puerto Rico, unspecified (Beebe and Belaval). West Virginia, whites (Beebe, G. W. Fertility and	0 47
Contraception in the So thern Annalachians to be published by Willia Tennesce, whites (Geis	044
Alone Series in Rural Tennessee, unpublished) Kentucky, whites (Beebe, G. W., and Geisler, M. A.: Control of Conception in a Selected Rural Sample, Human Biology, to be published)	0 40

"burning." Ten per cent of the foam powder patients and I per cent of the diaphragm and jelly patients stopped because of "burning." Another outstanding

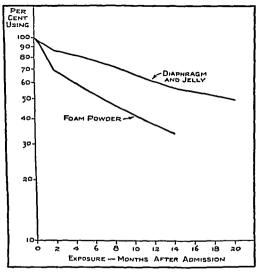
[†] In years of schooling ‡ Births per year of married life

² A difference is called statistically significant here when it is of a magnitude which might be expected to arise by chance five times or less in a hundred trials (P≤005). In the absence of a contrary statement, any difference or other relationship given in the text has been subjected to a statistical test believed appropriate and has been found to be reliable in this sense.

patients for the two methods
4 The following commercial jellies and creams were prescribed in the clinic. Cooper Creme, Holland Rantos Emulsion Jelly, Koromev Jelly, Lactikol Creme, Lactikol B and Ramses Jelly.
5 P S Foam Ponder was advised The manufacturer, Philip Stoughton of New York City, suces the quantitative formula, on the basis of weight, as cornstarch 84.25 per cent, Duponol W. A. 14 per cent and paraformal(defi) de 175 per cent Duponol W. A. 14 per cent and paraformal(defi) de 175 per cent Duponol W. A. 15 a commercial deter cent obtained by sulfonating technical laury) alcohol

difference in the table centers on the combination of lack of confidence, preference for another method, and change of prescription, for which the relative losses are 18 and 7 per cent. The third major source of variation is the relative frequency of conception during use of the prescription. The percentages of 16 and 8 suggest that foam powder may have provided materially less protection than diaphragm and jelly. Each of these three differences is statistically reliable and, taken together, they explain most of the divergence in the curves shown. Noteworthy for both groups are the low percentages of cessation associated with apathy, moral or religious objection, belief in protection from lactation or some pathologic condition, and esthetic objections.

The two method groups differ appreciably in their dependence on the prescribed methods after admission to the service. Table 4 gives the percentages of patients reporting several types of contraceptive experience and shows that more patients relied exclusively on dia-



Decline in percentage using prescribed methods

phragm and jelly than on foam powder. Measured as a percentage of all exposure after admission, the relative dependence on diaphragm and jelly was 78 per cent and on foam powder 64 per cent. The slightly greater resort to other methods of contraception on the part of the foam powder patients is not statistically The two groups substituted essentially the same methods for that advised, withdrawal and condom being most frequent and douche rather infrequent. It will also be noted from table 4 that the two groups differ only insignificantly in their failure to take contraceptive precautions at any time after admission. the foam powder patients more frequently experienced conception, of course, they would be expected to refiain from contraception more often simply because of post-The two groups do partum amenorrhea and lactation differ significantly, however, in the extent to which the mitial prescription was subsequently changed cent of the diaphragm and jelly patients and 15 per cent of the foam powder patients were given other methods.

Whatever index of acceptance after trial is employed, therefore, the foam powder method appears to have been definitely less suitable for the patients advised in its use than is true of the diaphragm and jelly method While the interpretation of this finding is obscured

by the selection of the patients, at several important points the hypothesis of homogeneity of the method groups as to basic contraceptive motivation and ability withstands statistical test. If the two groups differ widely in these respects, they should also differ in resort to other methods of contraception and in failure

Table 3—Percentage of Patients Abandoning Prescription for Stated Reasons, by Method Prescribed

	Method P		
Reason	Diaphragm and Jelly	Foam Powder	Total
Unknown	3	1	2
Burning	1	10	5
Other pain or discomfort	4	5	4
Esthetic objection, e g, messiness	*	*	*
No confidence, preference for another	· ,		
or prescription changed .	7	18	11
Apathy	3	2	3
Moral or religious objection	*	*	
Conceived during use of prescription	8	16	12
Out of exposure, and so on	11	11	11
Risk of conception thought negligible	*	1	*
Out of supplies	7	6	7
Total	44 5	70 7	55 7
Number of patients followed up	400	J00	700

^{*} Less than 05 per cent

to adopt precautions Table 4 gives no support to this view. Moreover, the fact that many more of the foam powder than of the diaphragm and jelly patients petitioned for a different prescription does not accord with the view that the former were less highly motivated Finally, the two method groups are homogeneous with respect to the proportion who, after abandoning the prescription, failed to take up any other method within the period of follow-up. Thus the analysis of the contraceptive experience after, as well as before, admission to the service gives no reason to abandon the position that a comparison of the experience of the two groups throws light on the relative utility of the two methods for the type of patient admitted to this service

EFFECTIVENESS OF PRESCRIBED METHODS

In formal analysis it is useful to make a distinction between the acceptance of a prescription and the protection obtained from its use, but the two elements are clinically inseparable This is illustrated by the asso-

Table 4—Percentage of Patients with Specific Contraceptive Behavior After Admission, by Method Prescribed

	Method Pr		
Contraceptive Behavior *	Diaphragm and Jelly	Foam Powder	Total
All exposure with prescription At least part of exposure with other	46	37	42
contraceptive methods	38	42	40
At least part of exposure with no con traception	25	33	29

^{*} The classification permits overlapping † Values in boldface are significantly different

ciation between unwillingness to continue foam powder and lack of confidence in its effectiveness. Contraceptive effectiveness may be defined in terms of reduction in the chance of conception. If the expected risk of conception is R, and the observed lisk R', then the difference R-R' measures the reduction, which may be

⁶ These interrelated elements were not separated in the coding

⁷ The statistically minded reader will appreciate the fact that no amount of strustical testing can prove the homogeneity of two groups of patients. Insignificance in such tests merely provides no reason to reject the hypothesis of homogeneity.

stated in relative form by means of the expression $100 \times \frac{R-R'}{R}$. If the expected risk R is taken as that which would have obtained had no contraceptive been employed, then $100 \times \frac{R-R'}{R}$ may be said to measure the effectiveness of the particular contraceptive practice giving rise to the risk R'. This definition makes no statements about an invariant, physiologic "effectiveness," but refers to observable clinical experience representing, as it does, the physiologic action of the contraceptive modified by whatever competence and diligence the patients manifest. At present the physiologic and the behavioral components of risk cannot be separated clinically, and only measures of use effectiveness are possible.

To apply this procedure, essentially that of Stix and Notestein,8 a statistic is required for estimating the chance of conception. The best available device is the pregnancy rate invented by Pearl.9 In its most general form the pregnancy rate may be stated as

 $Rp = \frac{\text{number of conceptions}}{\text{number of possibilities for conception}}$ The particular rate employed here defines as the unit of possibility for conception the exposure month, an elapsed month in the married life of a patient during

Table 5.—Relative Effectiveness of Prescribed Methods

	Experience with Prescription			Enpected Rate * on Assumption	Percent-
 Prescription 	Exposure, in Months	Concep tions		of No Contraception (Estimated)	Effec-
Diaphragm and jelly Foam powder	4,336 2,476	32 57	9 28	75 75	88 63
Total .	6,812	89	16	75	79

^{*} Pregnancies per hundred woman years of exposure to the chance of conception, or $Rp = 1,200 \times (eonception </e>/coposure months)$

which conception was physiologically possible. In other words, from the time during which the patient was under observation, deductions are made for months of gestation, puerperium, abstinence and the like, and exposure is considered to be terminated by sterilization of either partner or by the menopause. The remainder, a number of months, may be called the exposure of the particular patient. In each exposure month, conception either did or did not occur, and both conceptions and exposure months may be classified in any way justified by the character of the clinical observations. The statistical measure employed here to describe the chance of conception may thus be defined as

Pregnancy rate = 1,200 × number of exposure months which gives the pregnancies per hundred woman years of exposure to the chance of conception. The rate is computed not for individuals but for groups of patients.

The clinician would like estimates of the chance of conception under conditions of perfectly regular and competent use. These would have considerable value for both research and clinical practice, but reliable observations permitting such a classification of clinical experience have yet to be obtained.10 Investigators

frequently endeavor to isolate the conceptions which apparently intervened despite the regular and competent use of a prescribed method, but the desired estimates of risk require that the exposure meeting these criteria also be isolated. The latter is virtually impossible in a series such as the present one. thetically it may be noted that 18 per cent of the diaphragm and jelly conceptions, and 31 per cent of the foam powder conceptions, were asserted by the patients to have occurred despite their regular and competent use. In 72 per cent of such instances the history shows that the nurse did not believe the patient. The director of the nursing service maintains the view, based on her intensive study of individual cases, that neither method has yet "failed," in the physiologic sense, any patient in the series.

The measurement of effectiveness requires an estimate of the uncontrolled chance of conception. The data on gravidity, parity and duration of marriage provide the basis for an estimate of seventy-five pregnancies per hundred woman years of exposure, which checks closely with other series in which more precise estimates have been made. Table 5 gives the pregnancy rates and the relative efficiency for each method. Allowance for minor variation in the expected rate could in no way disturb the conclusion that the effectiveness of diaphragm and jelly greatly exceeded that of foam powder. On the other hand, it is evident that the 88 per cent protection obtained with diaphragm and jelly is higher than might have been anticipated from previous studies, for it approximates the protection reported for a private practice series 11 and for outstanding urban clinics 12 ministering to the needs of women of greater economic and social privilege. The foam powder protection of 63 per cent is also very real, and the combined effectiveness of the two methods represents definitely superior protection. One reason for the generally favorable result is believed to be the intensive care which the patients received from public health nurses, for the average diaphragm and jelly patient was seen nine and three-tenths times during fifteen and five-tenths months of follow-up and the average foam powder patient eight and one-tenth times in fifteen and three-tenths months. Without the frequent home visits and the skilful nursing made possible by incorporating the contraceptive service into the general public health program and by the exceptional interest of the director of the nursing service, far less than 80 per cent pro-

tection would probably have been achieved. The difference in effectiveness is both large and independent of any differences between the groups with respect to education, income, prior contraceptive experience and duration of marriage. The selection of the foam powder patients for greater age, parity and gravidity should tend to yield a group slightly below average reproductive capacity, 13 for the relative fertility of the two groups was the same before admission The latter finding makes highly improbable the existence of any real physiologic difference, e. g. a gaping os uteri or other gynecologic condition which might diminish the occlusive power of the foam and sponge and thus prejudice the result. Moreover, the foam powder patients actually experienced an insignificantly lower

^{8.} Stix. Regine K, and Notestein, F. W. Effectiveness of Birth Control, Milbank Memorial Fund Quarterly 13: 162 178 (April) 1935.

9. Pearl, Raymond: Contraception and Fertility in 2,000 Women Human Biology 4: 363 407 (Sept.) 1932.

10. In this study, as in others under the auspices of the National Committee on Maternal Health, such estimates have been attempted but without success. For example, in coding the Nashville histories it was found that virtually all patients claimed regular use until conception occurred, after which admissions of irregularity were frequently made for experience previously alleged to have been regular.

^{11.} Dewees, Lovett, and Beebe, G. W. Contraception in Private Practice, J. A. M. A. 110: 1169 1172 (April 9) 1938

12. Stir, Regine K. Birth Control in a Midwestern City, Milland Memorial Fund Quarterly 17:69 91 (Jan.), 152 169 (April), 392 433 (Oct.) 1939. Stix, Regine K., and Notestein, F. W.: Controlled Fertility, Baltimore, Williams & Wilkims Compans, 1940.

13. Stix, Regine K. The Medical Aspects of Variations in Fertilite, Am. J. Obst. & Gynec. 25: 571 580 (April) 1938.

chance of conception when they did not use the prescription than is true of the diaphragm and jelly patients. Finally, the pregnancy rates for women classified by education and income differ only insignificantly within each method group, whereas the rates for the two methods are very different for women of similar education, income and prior contraceptive experience. It is plain that the educational differential noted earlier in the paper exerts no sensible influence on the result observed. From the standpoint of both the physiologic and the psychologic determinants of protection, therefore, the evidence sustains the position that the two method groups are comparable and that their differential success may be attributed to the methods prescribed.

THE TOTAL CONTRIBUTION OF THE SERVICE

Evaluation of the total contribution of a contraceptive service must recognize that the needs for protection which patients present on admission do not vanish on their rejection of an initial prescription. Only the examination of a representative portion of their experience after admission to the service, chosen without regard for their acceptance of prescribed methods, con-

expected in the absence of any contraceptive practice is $100 \times (75 - 22) \div 75$, or 71 per cent. This is a very generous estimate of the contribution of the service, for undoubtedly some effort would have been made to control conception if the service had not been made The only estimate which the observations themselves provide is the rate of 40 calculated for the exposure during which the prescribed methods were not employed. In view of the high risk found for the period before enlistment it seems doubtful that a pregnancy rate as low as 40 could have been achieved without the aid of the service. Hence the use of this rate in estimating the contribution of the service is surely conservative. On this basis the gain in protection is 45 per cent for the entire series, 55 per cent for the diaphragm and jelly patients and 28 per cent for the foam powder patients.

SUMMARY AND INTERPRETATION

The observations reported here demonstrate the possibility of very extensive fertility control in Nashville among indigent white patients selected for high fertility and interest in family limitation. Despite a ready willingness to try the methods advised, however, neither

Table 6 .- Chance of Conception Following Admission, by Contraceptive Practice and by Method Prescribed

		Prescription Not				Total Exper	ience After	Admission	
	Prescription Employed,*	Employed		Exposure			Per Cent	Reduction	
Prescription	Rate †	in Months	Pregnancies	Rate †	in Months	Pregnancies	Rate †	Below 75 ‡	Below 40 ‡
Diaphragm and jelly Foam powder		1,206 1,401	49 38	49 33	5,542 3,877	81 95	18 29	76 61	53 28
Both methods	16	2,607	87	40	9,419	176	22	. 71	45

* Rates from table 5.

Pregnancies per hundred woman years of exposure.

1 Port rates are estimates of the risk these patients would have experienced if they had never been admitted to the service. The rate of 75 assumes that no contraception would have been practiced; the rate of 40 assumes fairly efficient and extensive practice of contraception. See text for further details.

stitutes an adequate basis for its evaluation. Completion of the present analysis, therefore, requires the presentation of the exposure and pregnancies while the prescriptions were not followed. Then the average chance of conception during the entire follow-up period may be compared with an estimate of the rate which would have obtained if the service had not been instituted.

An active service tends to drop patients unwilling to continue with prescribed methods and thus to limit its access to that part of the experience which lies beyond the control of the prescribed methods. This is also true of the Nashville service. It implies that over a longer period of observation, with a random or complete follow-up, different pregnancy rates might be obtained for the total experience and for that portion of it which does not involve the use of prescribed methods.

The supplementary data appear in table 6. The additional experience represents the use of different methods as well as some exposure during which no effort at protection was made. The rates for the two groups are 49 and 33, and for the amounts of exposure involved the difference is not statistically reliable. These rates clearly show the influence of fairly extensive efforts to control conception. The total rates of 18 and 29 summarize all the experience after enlistment for the two method groups, and the rate of 22 does this for all the patients advised. During the entire follow-up period, therefore, the total reduction below the risk

diaphragm and jelly nor foam powder and sponge proved sufficiently acceptable to prevent patients from rapidly leaving the service. The difficulty is not new; it pervades all contraceptive services organized on the basis of a single or central method, usually diaphragm and jelly. More individualized prescription ¹⁴ of a wider variety of methods might make the service more effective, as would any change which reduced the likelihood of irritation or other pain and discomfort or which enhanced confidence in the technics prescribed.

Comparison of the two prescriptions presents certain hazards because foam powder was advised for patients for whom the diaphragm method was deemed unsuitable. Detailed comparison at many points, however, supports the view that the two method groups are alike in their uncontrolled pregnancy risk and in their contraceptive skill and interest. Diaphragm and jelly proved much more acceptable to patients advised in its use than did foam powder. Examination of other aspects of the contraceptive endeavor of each group furnishes no reason to believe that the apparent superiority of diaphragm and jelly is not real. The protection received from diaphragm and jelly also exceeded that obtained from foam powder by a wide margin, the effectiveness percentages being 88 and 63. Analysis of the factors influencing the chance of conception within each method group leaves little doubt that the difference is one of methods rather than one of patients.

^{14.} Dickinson, R. L.: Control of Conception, ed. 2, Baltimore, Williams & Wilkins Company, 1938.

Clinical Notes, Suggestions and New Instruments

NEAR FATAL REACTION TO TRANSFUSION WITH DRIED HUMAN PLASMA SOLUTION

S. H. POLAYES, M.D., AND J. A. SQUILLACE, M.D. BROOKLYN

The following case is reported in support of our contention that, except in dire emergencies, cross matching tests should be performed with the patient's blood prior to each and every transfusion, whether whole blood or plasma is used.

A. N., aged 29, white, a housewife, was admitted in labor to the Prospect Heights Hospital on July 1, 1941. In her early months of pregnancy she had suffered from persistent vomiting, which, however, subsided with the usual therapy. On admission to the hospital she stated that labor had begun at 4 a. m. that day and that the membranes had ruptured two hours later. The essential observations on physical examination were as follows: The patient was in active labor with the fetus in the left occipito-anterior position. The vital signs were normal. There was a functional mitral presystolic murmur. A blood count showed the following: red blood cells 4,340,000 per cubic millimeter, hemoglobin 58 per cent, white blood cells 10,200 with 66 per cent polymorphonuclear cells, 33 per cent lymphocytes and 1 per cent eosinophils. The urine showed an alkaline reaction, a specific gravity of 1.014, a slight trace of albumin without casts and about 1 to 2 red blood cells per high power field.

Labor progressed normally and at about 4 p. m. on the day of admission the cervix was completely dilated. Two hours later the patient was delivered spontaneously of a normal female infant by left occipitoanterior presentation. The placenta was also expelled spontaneously, approximately fifteen minutes later. The general condition of the patient was good when she was returned to her room. The uterine fundus was firm and there was only a moderate amount of bleeding, which subsided completely by 9 p. m. About 6:30 a. m. the next day profuse vaginal bleeding was noted. It could not be definitely determined just when during the night bleeding had commenced. On examination at 7 a. m., the patient presented the usual clinical manifestation of severe loss of blood and the uterus was palpable at the umbilicus. Ergot by hypodermic was given at once, followed by a uterine stimulant by mouth, which was to be repeated three times during the day. She was also given an intravenous injection of 1,000 cc. of 10 per cent dextrose in saline solution while preparations were being made for a blood transfusion. Because a compatible blood donor was not immediately available, it was decided to give the patient 250 cc. of normal human plasma ("Lyovac" Rapidly Lyophilized Normal Human Plasma, Sharp and Dohme) which had been kept available for just such an emergency. In the meantime, the patient was reacting satisfactorily and, prior to the administration of the plasma, had improved considerably. The plasma was diluted and administered exactly as specified in the directions accompanying the outfit. No cross matching tests were performed, since the circularized instructions on the use of the plasma specifically state that such tests are entirely unnecessary. The injection of the plasma was slow, having lasted about an hour and fifteen minutes. About twenty minutes after the completion of the transfusion the patient suddenly experienced a chill, which was accompanied by nausea and vomiting. The pulse rate rose to 160 a minute and the patient repeatedly expressed fear of impending death. The poor condition and general appearance of the patient, as was later admitted by the attending physician, convinced him also that death was impending. The patient presented a typical picture of acute shock. Her face was ashen gray and her skin cold and clammy. Her voice was feeble and her pulse almost imperceptible. She

was given 1 cc. of epinephrine and caffeine with sodium benzoate by hypodermic as well as applications of external heat. The reaction lasted about thirty minutes, then began to subside, Her color gradually improved and the pulse rate dropped to 100 a minute. The weakness, however, persisted for a number of hours.

The following day a whole blood transfusion of 500 cc. was given to the patient without any untoward results. The donor was her brother, also of group A, and his blood was found to be compatible with her blood on cross matching prior to the transfusion. Following this, she made an uneventful recovery and was discharged cured on the tenth hospital day.

A catheterized specimen of urine, which was obtained immediately after the reaction, showed 1 to 2 red blood cells per high power microscopic field. Since similar conditions were noted on admission, they cannot be ascribed to the transfusion reaction. However, subsequent examination showed a persistence of the hematuria, which at times became exacerbated. Thus, on the fifth day after the reaction the urine continued to show albumin, a moderate number of hyaline and granular casts and many more red cells than had been noticed previously. The urinary conditions did not return to normal until just before her discharge from the hospital.

As soon as the reaction occurred, the laboratory was called on to determine, if possible, the cause of the accident. The usual routine "check-up" tests were then performed, consisting of the regrouping of the patient's blood, cross matching of the patient's cells and plasma solution, as well as various tests on the plasma for atypical agglutinins or hemolysins, and for formed elements including bacteria and the like. Fortunately we had in our possession a sample of the patient's blood which was obtained prior to the plasma transfusion. (This specimen of blood had been obtained with the intention of grouping and cross matching for a whole blood transfusion, which was the original intention of the attending physician. Since no compatible donor was available at the moment, however, it was decided to give the patient a plasma transfusion instead.) Examination of this specimen of blood showed it to be group A (MN) and on being mixed with a sample of the plasma solution which had been salvaged from the flask from which the patient received the plasma transfusion a most pronounced and immediate agglutination of the red blood cells occurred. Various dilutions of this plasma solution were then prepared, ranging from 1:2 to 1:8. These dilutions actually represented 1:4 to 1:16 dilutions of the original dry plasma, since the plasma solution that had been injected into the patient was prepared by dissolving the dry plasma in equal parts of distilled water. All dilutions up to and including 1:8 readily agglutinated the patient's cells in vitro. Similar results were obtained with fresh specimens of the patient's blood and the same dilutions of plasma. Apparently the transfusion reaction did not alter the patient's blood so as to mask the reactions in vitro. It is also noteworthy that dilutions of the plasma as high as 1:16 with water failed to hemolyze the patient's cells. These tests were performed with the direct coverslip preparation at room temperature as well as with the more sensitive centrifuge and incubation technic. The readings were all definite and recurred consistently with each repeated examination, leaving no doubt as to the validity of the observations.

The diluted plasma was also tested with the blood of 10 other persons, 6 of group A, 2 of group B and 2 of group O. It agglutinated the cells of all except those of group O, indicating that the responsible factor for the agglutination in vitro was not an individual one peculiar to the patient.

Studies made on the patient's blood and the plasma solution for the Rh factor, while disclosing that the patient was Rh positive, failed to show, however, any anti-Rh agglutinins in the plasma, or in the patient's serum. Furthermore, the plasma solution failed to agglutinate other known Rh positive bloods. The Rh factor, therefore, can be absolved from responsibility in the reaction that occurred in this case. The possibility of an isoimmunization by an antigen other than Rh during the course of her present pregnancy can also be excluded in this case, since the patient's serum failed to show any atypical agglutinins and also since the child is normal.

Dr. Philip Levine of the Beth Israel Hospital, Newark, N. J., cooperated by performing the Rh tests on the specimens of blood and plasma in this case.

From the Departments of Pathology and Obstetrics of Prospect Heights Hospital and the Department of Pathology of the Cumberland Hospital.

COMMENT AND CONCLUSION

Although the exact cause for the reaction in this case is not entirely clear, the evidence points strongly to an incompatibility between the patient's cells and the plasma solution injected. So pronounced an agglutination as occurred in vitro between the patient's blood and so highly a diluted plasma cannot be dismissed too lightly. While it is true that there was no decided hemolytic process observed after the reaction, the clinical picture was otherwise typical of a severe transfusion shock. Fortunately the reaction did not prove fatal. Certain it is, however, that if the agglutinative titer of the plasma (even though demonstrable in vitro only) had been known to the physician prior to the injection of the plasma, he would not have dared to proceed with the transfusion. With the knowledge of the results in this case as subsequently disclosed by the cross matching tests, even the most enthusiastic supporters of the theory that plasma may be safely given without cross matching would hesitate to inject this particular plasma solution. Obviously, unless pretransfusion cross matching tests are performed one cannot hope to be able to detect such potentially troublesome plasma solutions. Yet no one will deny that the patient is entitled to this added precaution whenever possible, despite the so-called factor of safety that has been built up about pooled plasma. Most of the plasma transfusions given today lend themselves to this precautionary measure, for in very few instances is the emergency so great that seconds count. Such dire emergencies are excluded from present consideration; all agree that such emergencies know no law.

In this case a cross matching test of the plasma with the patient's blood prior to the transfusion might have spared the patient a near-fatal reaction. It should serve as a warning against similar instances in the future.

DEATH FOLLOWING THE INTRAVENOUS ADMIN-ISTRATION OF DIODRAST

HAROLD L. GOLDBURGH, M.D., AND SAMUEL BAER, M.D. PILL ADELPRIA

In view of the extensive and widespread use of radiopaque solutions in excretory urography, it is not surprising that numerous toxic effects of the solutions used have been reported. Nausea, vomiting, shock, urticaria, edema of the glottis, rhinitis and various other manifestations of hypersensitiveness have been known to occur.1 Arterial and venous thromboses resulting from the use of diodrast or a preparation similar to it have been reported in the American and foreign literature.2 Fatalities following the intravenous use of diodrast, however, have been exceedingly rare, when it is considered that millions of these injections have been given.3 The occurrence of such a fatality forms the basis for this presentation.

REPORT OF CASE

Mrs. M. G., aged 67, was admitted to the medical wards of the Jewish Hospital on Oct. 23, 1941 for treatment of diabetes mellitus. She was known to have had diabetes for about fifteen years and had been attending the cardiac, metabolic, medical, arthritic and allergic outpatient departments of the hospital off and on for twenty years. Since her diabetes was only moderately well controlled she was hospitalized for standardization.

On admission she presented the usual symptoms that one would expect to find in an elderly woman suffering from uncontrolled diabetes, hypertensive heart disease and degenerative arthritis. She also complained of dyspnea and a chronic nonproductive cough. There was no demonstrable cardiac failure. The heart was enlarged to the left, and systolic murmurs were heard at the apex and over the aortic area.

Diodrast, brochure published by Winthrop Chemical Company, Inc., August 1941.

arteriosclerosis and hypertension were present. Preliminary laboratory studies revealed hyperglycemia, glycosuria and a moderate hypochromic anemia.

During an attempt to regulate her diabetes the dyspnea became more severe and basal rales and mild bilateral pleural effusion developed. Serial electrocardiograms revealed the presence of progressive myocardial damage. The electrocardiographic changes, together with the slowly developing cardiac failure and a rapid sedimentation rate, made us suspect the presence of a silent subacute myocardial infarction. Under rest and digitalization her cardiac status rapidly improved.

November 11, eighteen days after admission, an intravenous urogram was done with diodrast, because of a palpable tender right kidney. The film revealed kidney shadows that were normal in size and position, but because of inadequate outlining of the urinary tract a repeat urography was advised. On November 18 at 3 a. m., the patient had an attack which seemed similar in every respect to the asthmatic attacks she had experienced fifteen years previously. She had had no asthmatic seizures for many years. Within forty-eight hours the respiratory difficulty disappeared and physical examination of the chest became negative.

On November 20 she was sent to the x-ray department for another intravenous urogram. A few drops of the diodrast were placed under the tongue, and when no reaction became manifest in from ten to fifteen minutes injection of the diodrast was begun. The injection consisted of 25 cc. of 35 per cent diodrast given in a period of seven minutes. Within five minutes the patient became deeply cyanotic and had a convulsive seizure. Unconsciousness developed and respirations gradually decreased, though the pulse was still perceptible. Despite all attempts at resuscitation, including the use of epinephrine and artificial respiration, the patient died within twenty minutes of the beginning of the injection. Two features particularly noted at death were the deep cyanosis and the well defined hepatomegaly. The liver, which had been barely palpable that morning, was at death enlarged about 6 inches (15 cm.) beneath the right costal cage. Permission for autopsy was denied.

COMMENT

We believe that this patient suffered a fatal anaphylactic reaction following the intravenous injection of diodrast. Whether the first injection of diodrast nine days previously acted as a sensitizing dose we cannot say.

Cumming and Chittenden 2 listed 5 deaths that were allegedly due to contrast mediums used in excretory urography. One or perhaps 2 of these deaths may not be attributed directly to the solution injected. Crane 4 reported 2 deaths due to the intravenous administration of diodrast. The 1 case in which an autopsy was done presented at autopsy a typical picture of anaphylactic shock. Dolan 5 also reported a fatal anaphylactic reaction following the intravenous administration of but 3 cc. of diodrast. The case he reported bears a striking similarity to ours, and we concur completely in his presentation of the death as one due to allergy. Certainly it is not the concentration of the iodine or the speed of injection that is responsible. Robb and Steinberg 6 have reported almost 500 injections of from 30 to 75 cc. of 75 per cent diodrast, injected within two seconds, without a serious reaction. At the Mayo Clinic, 7 25,000 intravenous injections of diodrast have been given without a fatality.

In view of the clinical picture presented by our case and the strong similarity to the one reported by Dolan, we feel that we should reemphasize his recommendations. A detailed allergic

From the medical wards of the Jewish Hospital.

1. Cumming, R. E., and Chittenden, G. E.: Intravenous and Retrograde Urography, J. A. M. A. 106:603 (Feb. 22) 1936.

2. Boon, A. A., and Lindeboom, G. A.: Arterial Thrombosis After Intravenous Injection, Arch. d. mal du coeur 31:1019 (Oct.) 1938. Cumming and Chittenden.

3. Dipdrast. brechure published by Wisches Charles.

^{4.} Crane, J. J.: Sudden Death Following the Intravenous Administration of Diodrast, J. Urol. 42:745 (Nov.) 1939.
5. Dolan, L. P.: Allergic Death Due to the Intravenous Use of Diodrast, J. A. M. A. 114:139 (Jan 13) 1940.
6. Robb, G. P., and Steinberg, I.: Visualization of the Chambers of the Heart, Am. J. Roentgenol. 41:1 (Jan.) 1939; Visualization of the Chambers of the Heart, ibid. 42:14 (July) 1939; A Visualization of Study of Fibrothorax, Radiology 33:291 (Sept.) 1939; Visualization of the Chambers of the Heart, J. A. M. A. 114:474 (Feb. 10) 1940.
7. Braasch, W. F., in discussion of Crane.

history should be taken of every patient prior to excretory urography, and the methods for testing the patient's sensitivity discussed by Dolan should be rigidly adhered to.

A fatality due to allergy followed the intravenous administration of diodrast. This is the ninth death recorded in the American literature. There should be extreme caution exercised in the intravenous use of this preparation in patients with a history of asthma or sensitivity to iodine.

1932 Spruce Street-6300 Rising Sun Avenue.

Council on Pharmacy and Chemistry

NONOFFICIAL REMEDIES NEW AND

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACL AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E SMITH, M D, Acting Secretary.

NIKETHAMIDE.—Diethylamide of pyridine- $3(\beta)$ carboxylic acid.—Pyridine- $3(\beta)$ carboxylic acid diethylamide.—The diethylamide of nicotinic acid.—N,N-diethyl nicotinamide.— $C_0H_0N_0CON(C_0H_0)_2$.

Actions and Uses .- Experiments involving several species of animals indicate that the action of nikethamide is mainly on the central nervous system. In animals the drug appears to stimulate medullary centers, giving rise to an increased rate and depth of respiration and to peripheral vasoconstriction. Possibly the vasoconstriction may be in part due to a peripheral action of the drug. In animals its administration usually results in some increase in blood pressure, but this may be preceded by a temporary and sudden lowering of the pressure. Claims have been made for the use of nikethamide as an agent to raise blood pressure in human beings, but the results are not consistent; pressure in numan beings, but the results are not consistent; it has been suggested that any rise in blood pressure may be secondary to improved respiration and to stimulation of the reflex centers. Small doses in experimental animals exert no action on the coronary vessels, but larger doses may increase the coronary flow. However, clinical evidence for the use of the proposed to promote increased coronary blood flow is not nikethamide to promote increased coronary blood flow is not conclusive.

Nikethamide has been used clinically as a cardiac stimulant, but the majority of published reports do not reveal it to be especially efficient and it is probable that the cardiac effect does not depend on a direct action on the myocardium. Most experiments with carefully adjusted doses show no consistent increase in the amplitude of the heart beat, and any beneficial effect in cases associated with imperfect filling of the right side of the heart may be due to a respiratory effect leading to an increased oxygen exchange in the lung. The relief of respiratory distress in cardiac disease, as in paroxysmal dyspnea, may result from the effect on the respiratory system. At the present time there is no justification for the use of nikethamide in association with chronic myocardial failure, myocarditis, coronary disease (coronary thrombosis or coronary sclerosis) and angina pectoris. The analeptic action of nikethamide suggests its usefulness in combating acute respiratory depression from anesthetics, alcoholic intoxication and hypnotics. However, it is not clear that nikethamide is superior in this respect to other available drugs, especially in cases of barbiturate poisoning. Because of its additional action on peripheral vascular tone it appears to be of benefit in cases of acute circulatory failure occurring during the course of surgical procedures or pneumonia. However, nikethamide is contraindicated in pneumonia unless circulatory collapse super-

Dosage—Nikethamide is available as an aqueous solution, 25 per cent W/V, for oral and for subcutaneous, intramuscular or intravenus administration but in account of the contraction but in account of the contraction of the or intravenous administration, but in emergencies no benefit can be expected from oral administration. The latter is usually true also for subcutaneous administration. The drug should true also for subcutaneous administration. The drug should preferably be given intravenously. Because nikethamide, after intravenous administration, is rapidly inactivated, the dose depends on the rate of injection. When doses larger than 3 cc. are given, the administration should be slow and the general reaction of the patient should be watched. It should be remembered that large or toxic doses produce consultions and may bered that large or toxic doses produce convulsions and may cause death from respiratory failure. The dose may be repeated at intervals according to the needs of the patient.

Tests and Standards .-

Nikethamide occurs as a clear, colorless to very pale yellowish, some what viscous liquid, possessing a slight characteristic aromatic odor and a peculiar bitter taste. Nikethamide is miscible in all proportions with water, alcohol and ether. The refractive index of nikethamide is 1522 to 1.524 at 25 C; the specific gravity is not less than 1058 nor more than 1.066 at 25 C. The \$p\$ of a 25 per cent aqueous solution (W/V) of nikethamide made with freshly boiled and cooled distilled water is not below 60 or above 65, as determined by means of a glass electrode. Nikethamide freezes on standing in the cold and melts at from 20 to 26 C; it resolutions essayls when cooled, provided some frag mentary crystals are present. Nikethamide boils at 128 to 129 C under a pressure equivalent to 10 mm of mercury, at 158 to 159 C under a pressure equivalent to 10 mm of mercury, and at about 296 to 300 C, with some decomposition, under a pressure of one atmosphere

Dissolve about 30 Gm of nikethamide in 10 cc of 10 per cent sodum hydroxide solution and warin on a water bath for thirty minutes, the solution yields the odor of diethylamine. Allow the solution to cool, acidify with dilute hydrochloric acid to a \$pi\$ of 36 (slightly acid to congo red); collect the fine, white precipitate on a filter, wash with water and recrystallize from 5 cc of water; collect on a filter and dry at 100 C.; the nicotinic acid obtained melts at 235 238 C.

Heat a few drops of nikethamide with 1 Gm of sodium carbonate a strong odor of pyridine results

Dissolve 10 Gm of nikethamide in 90 cc of water; the solution is clear, nearly colorless and free from the odor of pyridine it yields only a faint odor of diethylamine. The solution will respond to the following tests: Add to 5 cc. of solution 5 cc of normal hydrochloric acid and 5 cc of a solution made by dissolving 12 Gm of potassium iodid, 3 Gm of bismuth subnitrate and 3 cc. of concentrated nitric acid in sufficient water to make a volume of 50 cc. a heavy reddish orange precipitate forms immediatel

When the solution is con, and i fee of water, cool and add 5 cc. of solution hydroxide solution the solution yields no distinct yellow color (forciam hydroxide solution the solution yields no distinct yellow color (forciam hydroxide solution the solution yields no distinct yellow color (forciam organic impurities).

A solution made by dissolving 1 Gm of nikethamide in 5 cc of car bondisulfide is clear (aater)

Ash 1 Gm of nikethamide: the residue is negligible

Transfer 25 mg. to 50 mg of nikethamide, accuratel) weighed, to a 50 cc Kjeldahl digestion flask and add 1 cc of water and 1 cc of contentrated sulfuric acid. Heat the mixture gently until most of the water has been removed and continue heating vigorously for fifteen minutes, cool, add 3 cc of water, transfer to a micro Kjeldahl distilling apratus, add 5 cc. of sodium hydroxide solution (1:1) and distil into a flask containing 10 cc of 2 per cent boric acid solution colored with methyl red solution (1 drop in each 20 cc). Titrate the solution with fiftieth normal sulfuric acid to a pink color, matched against a prepared blank. Each cubic centimeter of fiftieth normal sulfuric acid is equivalent to 3565 mg, of nikethamide. The amount of nikethamide found should be not less than 99 per cent nor more than 1005 per cent.

The following dosage forms have been accepted: GEORGE A. BREON & Co., INC., KANSAS CITY, Mo.

Solution Nikethamide 25% W/V: 2 cc and 5 cc. ampuls

THE LAKESIDE LABORATORIES, INC., MILWAUKEE.

Solution of Nikethamide, 25% W/V: 2 cc. and 5 cc ampuls and 15 cc. vials with dropper for oral use.

Solution of Nikethamide, 25% W/V: 15 cc. vial for injection with 05% chlorobutanol.

ENDO PRODUCTS, INC., RICHMOND HILL, N. Y.

Nikethamide: bulk.

Solution Nikethamide 25% W/V: 11/2 and 5 cc. ampuls; 15 cc. vials for oral administration

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Solution Nikethamide 25% W/V: 1.5 and 10 cc. ampuls; 3 ounce bottle.

MENADIONE (See THE JOURNAL, Jan. 17, 1942, p 226) The following dosage form has been accepted:

McNeil Laboratories, Philadelphia.

Capsules Menadione: Each soft elastic black capsule contains 2 mg. of menadione dissolved in corn oil.

SULFATHIAZOLE (See New and Nonofficial Remedies,

1941, p. 519).
The following dosage forms have been accepted: GEORGE A. BREON & Co., INC., KANSAS CITY, Mo.

Sulfathiazole-Breon (powder): bulk. Tablets Sulfathiazole-Breon: 05 Gm. (734 grains).

HOSPITAL SERVICE IN THE UNITED STATES

TWENTY-FIRST ANNUAL PRESENTATION OF HOSPITAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

TABLE OF CONTENTS

HOSPITAL DATA, STATISTICAL TABLES, MAPS AND TEXTPAGES	1053-1066
INTERNSHIPS, RESIDENCIES AND FELLOWSHIPS	1067-1070
LIST OF REGISTERED HOSPITALSPAGES	1071-1134
APPROVED SCHOOLS FOR OCCUPATIONAL THERAPISTS, PHYSICAL THERAPY	
TECHNICIANS AND CLINICAL LABORATORY TECHNICIANSPAGES	1135-1142

The twenty-first annual census of hospitals by the Council on Medical Education and Hospitals of the American Medical Association for the year 1941 discloses a total of 6,358 registered hospitals. This is an increase of 67 hospitals over the number on the Register one year ago.

The growth of hospital facilities for the past year was the equivalent of one 269 bed hospital for every day,

Sundays and holidays included.

The capacity of registered hospitals amounts to 1,324,381 beds and 66,163 bassinets. There are 98,136 more beds and 4,224 more bassinets than one year ago.

These figures refer only to inpatients, or bed patients, and do not include outpatients or ambulatory patients, a similar number of whom visit hospital outpatient departments.

The total patient days of hospital service for 1941 was 396,769,235, an increase over 1940 of 21,190,649. The number of patient days was obtained by multiplying the average daily census of all registered hospitals by 365

The average occupancy rate in general hospitals was 68.2 per cent compared with 70.3 per cent for the preceding year.

	OSPITAL Number	DATA Beds	Bassinets	Patients Admitted in 1941
1. Registered hospitals and sanatoriums approved for internships, residencies and fellowships	1,049*	471,301	30,144	5,672,733
2. Other registered hospitals, sanatoriums and related institutions	5,309	853,080	36,019	5,923,455
Total registered	6,358	1,324,381	66,163	11,596,188
Of the foregoing, the American College of Surgeons approves	2,307	726,531	44,330	8,334,546
3. Refused registration after investigation (capacity 16,267)	vith facilities f	or hed care (capac	ity unknown)	2,534 95 55

* As of Dec. 31, 1941.

For thirty-one years the average net increase in hospital facilities was around 25,000 to 30,000 beds each year, as contrasted with 98,136 beds increase between the census of 1940 and the census of 1941.

The present report covers approximately the calendar year 1941. Because of differences in fiscal years, not all hospitals supplied data for the calendar year 1941. The minority, including mainly the smaller hospitals, reported for the twelve month period ended Sept. 30, 1941.

Reports were received from 6,318 hospitals out of the total of 6,358 registered hospitals, or a record of 99.4 per cent.

The total number of patients that entered registered hospitals during the year was 11,596,188 as compared with 10,087,548 for the previous year, an increase of 14.95 per cent. Patients entered hospitals, therefore, at the rate of one for each 2.7 seconds day and night throughout the year, including Sundays and holidays.

The average census of patients in hospitals was 1,087,039, an increase of 60,868 over the previous year.

Special acknowledgment and appreciation are extended to the many hospital superintendents and assistants, chiefs and members of staffs, and other officials who have cooperated by supplying details that made possible the elaborate and complete statistics and lists published in this issue. Much credit is due to county and state medical organizations and health commissioners for their prompt and efficient help.

The average number of idle beds in general hospitals for 1941, as indicated in the reports, was 169,884. In 1940 it was 137,200.

This drop in occupancy rate is readily explained by the unusually rapid increase in hospital facilities, which temporarily got ahead of the occupancy rate. There has been a rise in occupancy rate in general hospitals since 1933, for example, when it was only 59.9 per cent. In the same time there has been a considerable increase in general beds.

The average stay per patient in general hospitals has been reduced from fourteen days in 1935 to twelve days in 1941, an average saving of two days per patient. For all the 10,646,947 patients in general hospitals in 1941 the aggregate saving was 58,339 years. Figuring this saving at \$4 a day, the cost of hospitalization for each patient admitted was \$8 less than it would have been in 1935, the equivalent of a saving of \$85,175,576 in hospitalization costs.

One person for each 11 in the United States entered a hospital as a patient in the year 1941, using the 1940 census and counting only bed patients.

ANNUAL CENSUS OF HOSPITALS

In each annual census blank are certain standard questions such as number of beds, bassinets, births, patients admitted, average census of patients, also lists of staff doctors and interns. In addition to these perennial data, each questionnaire includes certain questions that are of importance at the particular time. Each succeeding questionnaire, therefore, is different from the preceding, and the tendency is for them to expand somewhat in length and complexity. The policy of the Council always has been to ask only for data that are important and to make use of all the information that is obtained.

The list of registered hospitals beginning on page 1071 omits additions to hospital facilities that may have been made by certain departments of the federal government since the publication of the last previous issue of the Hospital Number, March 15, 1941. The statistical tables, however, include data on all registered hospital facilities.

The hospitals that are approved by the Council for internships and for residencies in specialties received a questionnaire that is more comprehensive than the one used for all the other registered hospitals.

In the list of registered hospitals following this article the hospitals that the Council approves for intern training are marked with a five point star (*) and those approved for residencies with a plus sign (+). Some detailed information regarding the hospitals approved by the Council are given on a later page under the heading of Internships, Residencies and Fellowships.

It is not necessarily true in all cases that the approved hospitals have essentially better equipment or give better care to patients, but because a hospital assumes the function of training interns and residents and is approved for that purpose it becomes necessary for the Council to check on the teaching facilities and functions in those hospitals in addition to the general information solicited from all other registered hospitals.

COOPERATION BY AMERICAN COLLEGE OF SURGEONS AND A. M. A. ON CENSUS BLANK

This year, for the second time, the questionnaires used by the Council represent a combination of the annual census blank of the American Medical Association and the annual questionnaire of the American College of Surgeons. Cooperation of the College and the Council reduces the work of filling out questionnaires by hospitals. It also facilitates the gathering of essential data required by the two cooperating organizations for their use and for the public. The officials of the A. M. A. and the College, and their office staffs, worked together to design a questionnaire that would elicit more information with fewer questions and achieve greater uniformity and simplification in the use of terms. All the hospitals that are fully approved as meeting the minimum standards of the American College of Surgeons are designated with a delta (A) in the list of registered hospitals, page 1071.

The accompanying tabulation shows the increase in hospital facilities bearing the approval of the American College of Surgeons.

Each organization has its own distinctive standards, administration, inspections and approved lists. Approval of a given institution by one organization does not in any way affect the initiative and the responsibility of

Percentage of Beds Occupied

According to Ownership or Control:	1929	1940	1941
Federal	768	79 5	66 3
State	94 6	914	93 6
County	S0 7	85.0	84 7
City.,	74 3	80 5	78 2
City county	80 2	65 5	73 7
(Potal governmental			
Total governmental	88 9	898	86.2
Church	66 7	70 4	73 1
Fraternal.	68 7		•
Nonprofit associations.		70.8	72 7
industriai	54 4		
Independent associations	65 9	• • • •	
Total nonprofit		70 6	73 2
Individual and partnership	542	52.0	57 7
Corporations (profit unrestricted)		62 5	615
Total proprietary		56 8	608
Total nongovernmental	64 6	63 5	71 4
According to Type of Service:			
General.	65 5	70.3	68 2
Nervous and mental	95 7	95 1	94 5
Tuberculosis	82 7	85 6	857
Maternity	62 8	62 6	63.3
Industrial .	54 6	53 9	56.2
Eye, ear, nose and throat	47.7	54 4	53 5
Children's	65 9	68 2	68 I
Orthopedic	80 2	76 <i>5</i>	77 1
Isolation	36 1	42 4	329
Convalescent and rest	709	77 7	82 7
Hospital departments of institutions	63 0	70 6	76 2
All other hospitals	746	79 9	85 6
Total all hospitals	1.08	83 7	£2 1

* Fraternal classification discontinued—transferred to nonprofit associations.

the other organization with regard to the approval of that institution. There is cooperation as to the joint questionnaire, correlation of inspection itineraries and mutual courtesy in the use of symbols to designate each other's approvals.

REGISTRATION AND APPROVAL

Registration means the inclusion of the hospital in the list published in the Hospital Number of The Journal and in the American Medical Directory. The Essentials of a Registered Hospital are employed in such a way as to raise the standards of hospitals and to point the way to better service.

Approval, on the other hand, means specific endorsement of hospitals for educational purposes, the fitness for which is determined by observation, inspection and

Hospitals Fully Approved by the American College of Surgeons in the United States

	==					
1941 1940		ospitals 2,307 2,261	Beds 726,531 652,634	Bassinets 44,330 41,697	Patients Admitted 8,334,546 7,495,253	

comparison with definite requirements for the intern training and residencies.

Registration is a basic recognition, extended to all the hospitals and related institutions concerning which the Council has no evidence of irregular or unsafe practices. Approval is designation of certain registered institutions by the Council for internships, residencies and fellowships; or by the American College of Surgeons as unconditionally meeting its minimum standards. Registration of hospitals is governed by the

Essentials of a Registered Hospital, adopted by the House of Delegates in 1928 and revised in 1939.

The term approved, as used by the College of Surgeons, may be applied to those registered hospitals that meet the minimum standards of the College.

Summary of Hospital Scrvice in the United States According to Type of Scrvice and Agencies Concerned from the 1941 Census of Hospitals Registered by the American Medical Association

	050	1.004.004	7 007 000	CC 769	1,404,940	11,596,188
U.S. Totals 6,	358	1,324,381	1,087,039	66,163	1,404,540	11,000,100
***		1- D-3-	Average	Dogginska	Disting	Admissions
	ospita	ls Beds	Census	Bassinets	Births	Admissions
Federal Totals	428	179,202	118,890	1,006	11,811	1,263,112
General	353	127,994	72,452	1,002	11,782	1,220,208
N&M	34	44,155	40,674	••••	,	19,996
TB	20	5,444	4,676		13	11,104
Special	2	544	431	4	16	1,000
Inst	19	1,065	657		• • • • • •	15,804
State						
Totals	530	600,320	561,620	1,572	32,113	620,231
General	61	22,152	16,705	1,312	31,589	343,886
N&M	264	542,134	515,918	178	339 26	132,984 28,477
TB	74	25,074	21,975 1,597	$\frac{4}{12}$	62	14,472
Special	16 115	2,203 8,757	5,425	66	97	100,412
Inst County	710	0,101	0,120	00	٠,	100,112
Totals	512	98,227	83,214	3,288	66,689	643,740
General	235	37,510	28,708	2,879	60,540	571,690
N&M	54	37,510 26,239	25,174	7	24	8.041
TB	185	23,826	20,807	2	21	23,918
Special	11	1,901	1,159	380	5,803	14,663
Inst	27	8,751	7,366	20	301	25,428
City						
Totals	337	78,060	61,019	5,045	112,962	999,559
General	243	49,462	38,077	4,925	111,081	936,485
N&M	4 28	4,826 12,239	4,546 10,726	1 92	5 1,855	1,155 18,334
TB Special	50	6,560	3,076	17	21	33,101
Inst	12	4,973	4,594	10		10,484
City-County		3,010	1,001		******	20,101
Totals	57	9,702	7,149	583	15,497	130,960
General	35	6,284	4,186	583	15,497	125,148
N&M			• • • • •	• • • • •		
TB	14	2,096	1,808	• • • • •	• • • • • •	2,149
Special	6	532	365	• • • • •	• • • • • •	2,524
Inst Church	2	790	790	• • • • •	• • • • •	1,139
Totals	993	100 991	00 105	90.145	402 111	0.001.504
General	866	123,331 110,400	90,195 79,875	20,145 18,676	463,111 441,133	2,961,594
N&M	17	3,511	3,240	10,010	441,100	2,884,985 3,770
тв	21	2,678	2,216			3,929
Special	86	6,652	4,786	1,454	21,978	68,538
Inst	3	90	78	15		372
Nonprofit						
Totals	1,917	182,140	132,472	26,422	561,844	3,931,141
General		142,390	102,118	24,713	536,771	3,605,789
N&M	36 86	7,136	6,482 6,329	•••••	•••••	12,046
TB Special	271	8,272	15,863	1 1,701	05.070	9,839
Inst	-10	21,756 S6	1,680	1,701	25,072	283,026 20,441
		20	1,000	•	•••••	20,441
		30	16,582	5,054	79,754	545,884
General	933	21,047	11,301	4,699	74,278	507,344
N&M	103	4,644	3,388	2	*****	11,324
TB	31	1,335	889		3	1,857
Special	77	1,734	1,004	353	5,473	25,359
Inst	••	• • • • • •	••••	• • • • •	•••••	
Corporations		04.000	75 000	0.040	A1 45°	
Totals General	435 303	24,639 16,939	15,898	3,048	61,159	491,967
N&M	81	16,259 5,499	10,192 3,757	2,943 31	59,524	451,412
TB	18	1,401	1,151	અ	435	19,276
Special	30	1,480	798	74	1,199	$\frac{1,866}{22,413}$
Inst	••	******	*****	*****	1,100	22,410

GOVERNMENT HOSPITALIZATION

Federal hospitals admitted 1,268,112 patients, including those of the Veterans Administration, Army, Navy, Public Health Service, the Departments of Justice and of Indian Affairs, the Tennessee Valley Authority and the National Youth Administration. The average census of patients in federal hospitals was 118,890.

FACILITIES UNDER STATE AND LOCAL GOVERNMENT

State hospitals number 530 and show an increase of 9 during the year. The capacity is 600,320 beds as compared with 572,079 beds a year ago. Bassinets now number 1,572. State hospitals admitted 620,231 patients and the average daily census was 561,620, an increase of 36,957 admissions and of 21,626 in the average daily census over the previous year.

There are now 512 county hospitals where there were 514 a year ago. The capacity of county hospitals decreased to 98,227 beds. Bassinets have slightly increased to 3,288. Patients admitted to county hospitals were 643,740 as compared with 615,247 for the preceding year. The average census of patients was 83,214, reduced from 87,029.

City hospitals, numbering 337, reached an increase of 5 over the previous year, and the bed capacity increased to 78,060 and bassinets to 5,045. The number of patients admitted was slightly increased to 999,559, and the average census reduced from 63,644 to 61,019.

City-county hospitals are fewer in number, capacity and average census but increased during the year in number of patients admitted from 126,487 to 130,960.

HOSPITAL FACILITIES UNDER NONPROFIT ORGANIZATIONS

For convenience, the hospital work of nonprofit organizations is shown under "Church Related Institutions" and "Other Nonprofit Associations."

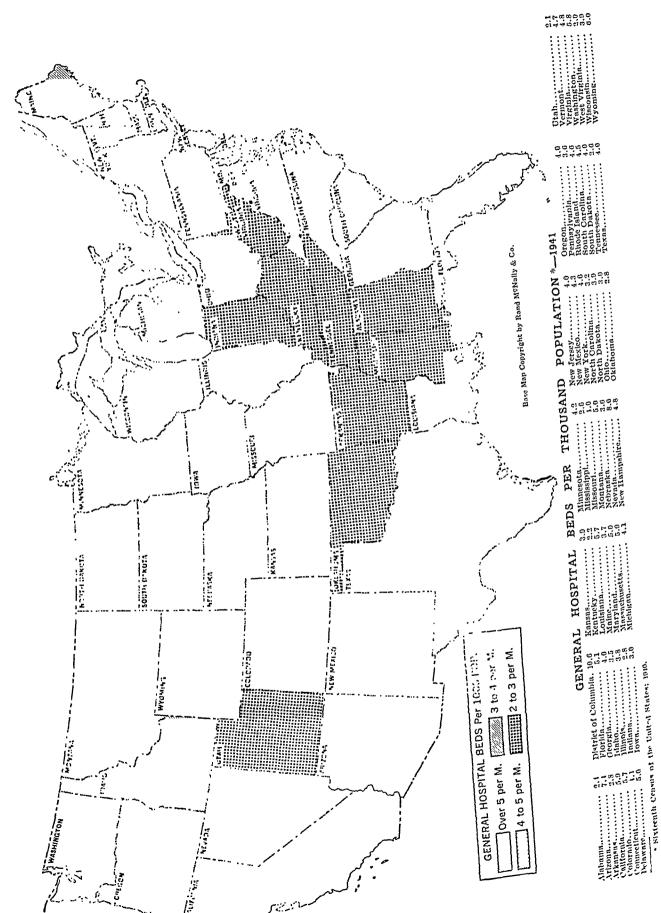
Church related hospitals number 993, which is 5 fewer than a year ago, but the group shows very substantial

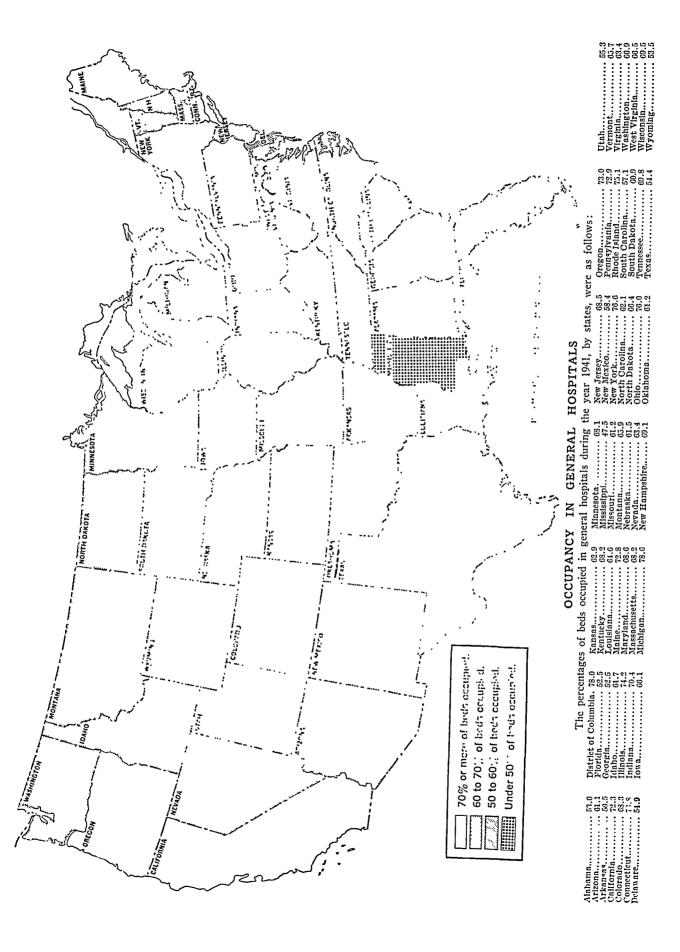
Supply and Utilization of Beds in General Hospitals; States Ranked According to General Hospital Beds per 1,000 Population (See Text Page 1061)

_					
_					
		General	Per Cent of	Per Cent of	
		Hospitals	Occupancy	Population	Population
		Beds	in General	Entering	of States
				General	U. S. Census,
		per 1,000	Hospitals,		
		Population	1941	Hospitals	1940
7	Utah	2.1	55.3	3.5	550,310
2.	Kentucky		68.2	5.1	2,845,627
					0.020,027
3.	Alabama	2.4	53.0	5.0	2,832,961
4.	Mississippi	2.6	47.5	5.2	2,183,796
5.	Tennessee	2.6	69.8	5.9	2,915,841
6.		2.8	56.5	4.3	1,949,387
7.	Oklahoma	2.8	61.2	6.0	2,336,434
8.	Indiana	2.8	70.4	6.6	3,427,796
9.	West Virginia	2.9	66.5	7.2	1,901,974
10.			66.1	7.2	2,538,268
11.	Ohio		76.0	7.3	6,907,612
12.	North Carolina	3.2	62,1	7.2	3,571,623
13.	Idaho	3.5	61.7	7.6	524,873
14.	Nobracko		61.5	6.7	
	Nebraska	0.0			1,315,834
15.			72.9	7.3	9,900,180
16.	Maine	3.7	72.8	7.6	847,226
17.			74.2	9.1	7,897,241
	Kansas		62.9	7.3	1,801,028
	North Dakota		66.4	9.3	641,935
20.	Wisconsin	3.9	69.5	8.7	3.137.557
21.	Georgia	4.0	52,5	7.0	3,123,723
22.	Missouri	4.0	61.2	6.9	3,784,664
23.			68,5	7.8	4,160,165
	Oregon		73.0	9.9	1,089,684
95	South Dakota	4.0	60.9	8.1	642,961
26.			54.4	8.0	
27.					6,414,824
2S.	Michigan		78.6 73.8	8.7	5,256,106
29.				9.7	1,709,242
	Minnesota		69.1	9.7	2,792,300
	New Mexico		58.4	6.7	531,818
31.			57.1	7.8	1,899,804
	Rhode Island		75.1	6.1	713,316
33.	New York	4.6	76.6	9.1	13,479,142
34.	Vermont	4.7	65.7	9.9	359,231
35.	New Hampshire	4.8	69.1	10.1	491,524
36.	Virginia	4.8	63.4	8.8	2,677,773
37.	Maryland	5.0	68.6	8.4	1,821,244
38.	Delaware		54.9	9.2	266,505
	Montana	5.0	65.9	9.7	599,456
40.	Florida	5.1	52.5		
41.	Louisiana		61.6	8.5	1,897,414
42.				10.7	2,363,890
	Colorado		63.3	9.6	1,123,296
43.	Washington		66.9	11.8	1,736,191
44.	Massachusetts	5.9	68.2	9.8	4,316,721
45.			72.3	10.3	6,907,387
46.	Wyoming		53.5	11.5	250,742
47.		7.4	61.1	11.4	449,261
48.	Nerada	8.0	63.4	12.3	110,247
49.	Dist. of Columbia		78.0	15.4	663,001
					007,001
	Total	4.1	68.2	8.1	131,669,275
		•••	V	0.1	101,000,210

increases in its facilities, which now number 123,331 beds and 20,145 bassinets. There were 2,961,594 patients admitted, and the average census was 90,195.

The other nonprofit organizations have increased in number from 1,903 to 1,917. They have 182,140 beds





and 26,422 bassinets. The number of patients admitted increased to 3,931,141, and the average census to 132,472.

The service accomplished by all nonprofit associations, including church related, is best understood by examining section B of table 1, where it is found that

Summary of Growth of Hospitals, 1909 to 1941

	Pederal State Hospitals Hospita				Other pitals	Total		
Year	Num- ber	Capac-	Num- ber	Capac- ity	Num- ber	Capac-	Num	Capac-
1909 1914 1918 1923 1928 1931 1932 1933 1934 1935 1936 1937 1938	71 93 110 220 294 291 301 295 313 316 323 329 330	8,827 12,602 18,815 53,869 61,765 69,170 74,151 75,635 77,865 83,353 84,234 97,951 92,248	232 294 303 601 595 576 568 557 544 526 524 522 523	189,049 232,834 262,254 302,208 369,759 419,282 442,601 459,646 473,035 483,994 503,306 508,913 541,279	4,056 4,650 4,910 6,009 5,963 5,746 5,693 5,585 5,477 5,404 5,342 5,313	223,189 287,045 331,182 399,645 461,410 485,663 497,602 491,765 497,201 507,792 509,181 517,684 527,853	4,359 5,037 5,323 6,830 6,852 6,613 6,562 6,437 6,334 6,189 6,128 6,128 6,166	421,065 532,481 612,251 765,722 892,934 974,115 1,027,046 1,027,046 1,048,101 1,075,139 1,096,721 1,124,548 1,161,380
1939 1940 1941	329 336 428	96,338 108,928 179,202	523 521 530	560,575 572,079 600,320	5,374 5,434 5,400	538,113 545,238 544,859	6,226 6,291 6,358	1,195,026 1,226,245 1,324,381

the total number of nonprofit institutions now is 2,910 with a capacity of 305,471 beds and 46,567 bassinets. Admissions to nonprofit institutions amounted to 6,892,735, the admissions for the previous year being 6,254,850. The average census was 222,667 as compared with the previous year, when it was 210,764.

FACILITIES UNDER PROPRIETARY CONTROL

The total of facilities now under proprietary control is 1,584 hospitals having a capacity of 53,399 beds and 8,102 bassinets. Patients admitted numbered 1,040,851 with an average census of 32,480.

Proprietary hospitals fall into two groups, those maintained by individuals and partnerships and those that are owned by corporations which have the privilege of making a profit or which, in other words, are unrestricted as to profit.

Individual and partnership hospitals, it will be noticed, have declined in number since the year 1927. They now number 1,149 with a capacity of 28,760 beds and 5,054 bassinets. Admissions increased last year to 545,884 and average census to 16,582.

The corporations unrestricted as to profit have 435 hospitals as compared with 449 a year ago. The number of beds has decreased in the past year to 24,639. There are 3,048 bassinets. The patients admitted increased to 494,967 and the average census rose to 15,898.

FIGURES ON ALL NONGOVERNMENTAL FACILITIES

The final, or total, column of table 1, headed "Total Nongovernmental," shows a tendency toward increase in the average size of those hospitals rather than in number. Total nongovernmental hospitals is now 4,494 as compared with 4,524 one year ago. Present capacity is at a peak of 358,870 beds and 54,669 bassinets. Patients admitted in all nongovernmental hospitals numbered 7,933,586 as compared with 7,218,544 in 1940. The average census was 255,147 as compared with 241,499 a year ago.

WHERE CHANGES IN CAPACITY OCCURRED DURING 1941

For thirty-one years the average annual increase in the capacity of hospitals had been in the neighborhood of 25,000 to 30,000 beds. The census for 1941, however, showed a remarkable increase, which is astonishing even for this unusual period.

During 1941 there was a net increase of 98,136 beds in all hospitals. State hospitals gained 28,241 beds, church related institutions 2,522 beds and other non-profit hospitals 4,459 beds. There were losses in bed capacity in county hospitals of 4,113 beds, city hospitals 985, city-county hospitals 1,595 beds, individual and partnership hospitals 198, corporation hospitals (unrestricted as to profit) 469. This makes a net increase of 98,136 for the year, or the equivalent of one 269 bed hospital for each day of the year, Sundays and holidays included.

REDUCED AVERAGE STAY PER PATIENT IN GENERAL HOSPITALS, COMPARING 1935 AND 1941

The average length of time spent in general hospitals per patient in 1941 was twelve days. In 1935 it was fourteen days. The very important thing is that there has been a saving of two days, and this saving when applied to all of the 10,646,947 patients who used general hospitals in 1941 means an aggregate saving of 58,339 years. The record achieved by each type or group of hospitals, according to ownership or control, is shown in the table entitled "Average Length of Stay per Patient in General Hospitals, 1935 and 1941." In that period the length of stay in governmental general hospitals dropped from twenty-two to eighteen and in nongovernmental general hospitals from eleven to ten days.

Further analysis shows that the general hospitals operated under federal auspices accomplished a reduction from thirty-six days to twenty-one days, state from twenty-one to eighteen days, county from twenty to eighteen days, city from sixteen to fifteen and city-county from seventeen to twelve days.

Continuing the comparison of 1935 and 1941, in church related hospitals the average stay dropped from twelve days to ten days and in all nonprofit associations from eleven days to ten days. Only the hospitals operated and owned by individuals and partnerships remained stationary at eight days; corporations for profit dropped from nine to eight days.

Average Length of Stay per Patient in General Hospitals, 1935 and 1941

According to Ownership or Control	1935 36 days	1941 21 days
State	21 days 20 days 16 days 17 days	18 days 16 days 15 days 12 days
All governmental general	22 days	18 dals
Church related	12 days	10 days
All nonprofit general	11 days	10 doss
Individual and partnership Corporations (profit unrestricted)	s days 9 days	8 days
All proprietary general	9 days	8 da5° 10 da5°
All nongovernmental general All general hospitals.	11 days	10 (la) - 12 days

PERCENTAGE OF BEDS OCCUPIED

The occupancy rate of all registered hospitals was 82.1 per cent for the year 1941 as compared with 83.7 for 1940 and 80.1 for 1929.

Although there was a large increase in number of patients admitted to hospitals during the year, it does not necessarily follow that the rate of occupancy would be higher. Indeed, it appears that because of the rapid

Marginal No

turnover of patients—that is, the shorter stay per patient—the rate of occupancy is not much greater than in previous years. In general hospitals, for example, the rate of occupancy was 68 2 per cent as compared with 70 3 one year ago and 65.5 in 1929.

The fact of a reduced rate of occupancy in general hospitals during the past year must be taken in connection with the large addition of new general hospital

patients to the minute throughout the year night and day, Sundays and holidays included.

OCCUPANCY IN GENERAL HOSPITALS

The map entitled "Occupancy in General Hospitals" shows graphically the prevailing rate of occupancy by states. Underneath the map is given each state's occupancy rate. The map is of value to those who wish

TABLE 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL.

B. NONPROFIT ORGANIZATIONS

==		B. NONPROFIT	ORGANIZATIONS				
ó		Church Related	Nonprofit Associations	Total Nonprofit			
Alarginal No.	Alabama	Hospitals Beds Bassinets Patients Average Census	Hospitals Beds Bassinets Patients Admitted Gensus	Hospitals Beds Bassinets Anticuted Average Gensus			
2 3 4 5 6 7 7 8 9 10 111 12 13 14 15 16 17 18 19 19 20 21 22 23 24 25 26 29 30 31 22 23 34 44 45 46 47 48 49	Arizona . Arkansas California Colorado Coonecteut Delaware District of Columbia Florida Georgia Idaho . Illinois . Indiana . Iowa Kansas . Kentucky Louislana Maine Maryland Mississippi Missouri Montana Nebraska Nevada New Hampshire New Jersey New Mexico New York North Carolina North Dakota Ohio Oklahoma Oregon Pennsylvania Rhode Island South Carolina South Carolina South Carolina South Carolina South Carolina South Dakota Tennessee Texas Texas Utah Vermont Virginia Washington Wesconsin Wyoming	. 9 950 158 33,124 661 . 7 1,00S 112 18,068 586 11 1,13S 149 28,792 732 47 5,665 1,031 159,783 4,505 27 2,633 403 55,757 1,789 6 1,441 273 42,948 1,165 1 105 35 1,663 67 4 821 168 27,526 665 8 1,008 142 24,545 670 8 655 95 18,752 599 11 851 183 20,775 566 86 12,371 2,130 307,082 9,094 14 4,051 642 94,017 2,751 38 3,003 518 74,29 2,103 15 1,605 239 48,916 1,308 16 1,628 208 51,312 1,308 16 1,628 208 51,312 1,308 16 1,628 208 51,312 1,308 16 2,724 442 55,441 2,161 33 4,600 1,006 130,883 3,644 33 4,140 663 105,567 2,782 2 238 38 9,168 174 41 5,898 789 134,630 4,507 24 1,801 349 41,377 1,262 27 2,492 430 53,097 1,451 1 75 15 1,970 8,883 13 824 110 14,746 487 79 11,942 1,786 202,459 1,744 14 1,137 188 29,341 188 17 3,429 503 71,304 2,883 18 824 110 14,746 487 79 11,942 1,786 202,459 1,744 14 1,137 188 29,341 188 143 7,123 1,183 191,726 5,613 18 920 164 25,027 659 17 1,978 329 58,000 1,510 37 5,600 865 98,533 4,002 3 445 60 6,707 352 5 421 65 12,053 299 15 1,193 191 27,539 793 8 1,225 193 43,294 1,012 47 4,557 70 138,221 2,936 6 905 193 24,813 724 3 230 34 4,703 176 3 343 47 9,008 202 22 2,565 483 68,765 7,655 9 990 134 23 081 18	21 1,540 149 36,035 989 14 562 61 9,317 328 138 819 83 15,318 400 79 7,189 992 166,073 5,235 25 2,151 93 17,083 1,394 39 5,474 894 118,287 4,293 8 1,038 181 19,641 642 10 1,703 337 41,566 1,459 22 1,630 219 47,646 1,253 5 110 34 2,335 61 97 9,666 1,638 242,314 7,029 20 1,369 262 37,667 94 21 4,369 160 1,7632 448 30 1,785 191 35,514 1,030 24 480 150 17,632 448 30 1,785 191 35,514 1,030	30 2,490 307 69,150 1,650 1 21 1,570 173 27,385 914 2 24 1,957 223 244,110 1,132 3 162 1,2854 2,023 325,8-6 9,740 4 52 4,768 490 72,840 3,183 5 45 6,915 1,167 100,535 5,459 6 9 1,223 216 21,004 709 7 14 2,524 565 39,092 2,115 8 30 2,385 314 66,393 1,812 10 16 961 217 23,110 627 11 183 22,037 3,768 549,300 16,123 12 46 5,530 990 140,534 3,900 13 62 3,943 608 91,861 2,411 15 42 3,590 450 84,439			
50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	Totals (1941) (1940) (1939) (1938) (1937) (1936) (1935) (1934) (1933) (1932) (1931) (1930) (1929) (1928) (1927)	998 123,331 20,145 2,961,594 99,195 998 120,899 18,561 2,679,576 85,007 1,001 120,740 18,044 2,682,762 61,984 991 119,521 17,320 2,531,796 80,576 975 115,383 16,851 2,499,114 19,113 999 113,265 16 360 2,286,064 74,037 970 113,265 16,033 1,90,309 69,592 970 113,265 16,031 1,90,309 69,592 970 113,265 16,007 1,766,525 33,851 984 115,840 16,190 1,763,565 63,621 1,001 117,555 16,122 1,918,214 79,119 1,011 116,936 15,561 2,013,352 73,911 1,017 116,846 15 615 1,024 113,555 15 037 70,770 1,036 114,613 13 190 1,060 108,582	1,903 177,681 24,978 3 574,974 129,757 1,839 172,765 23,371 3 503,488 119 342 1,776 169,980 22,523 3 316 310 117,558 1,718 162,474 21,511 3,201 042 114,508 1,749 103,557 1,758 2,977,709 107,510	2,910 305,471 46 667 6 892,735 222 667 59 2,901 298,400 43,539 6 254 850 210 764 51 2,840 293,505 41,415 6,186,2-0 201,3*6 52 2,757 289,501 39,843 6,848,100 195 131 51 2,932 77,77 83 902 5 609,150 193 6*1 54 2,932 77,77 83 902 5 609,150 193 6*1 54 2,911 275,874 31,598 5,2-8,772 181 547 55 2 610 265 808,536,152 4 477 515 167 6*0 56 2,046 267,712 36,251 4,163,735 157,067 67			

facilities during the year. The church related hospitals were operated at an average occupancy of 73 1 per cent, as compared with 70 4 one year ago and 66 7 per cent in 1929. Corporations unrestricted as to profit were 64.5 per cent occupied as compared with 62 5 a year ago. Hospital administrators in general agree that the maximum optional percentage occupancy consistent with efficient service is not much in excess of 75

The admission of patients to all hospitals is shown by the census of 1941 to have been at the average of 22

to compare with similar maps published in the Hospital numbers for preceding years. Of course no state has an even rate of occupancy of hospitals all over the state—in fact, the hospitals of a state may vary from the lowest to the highest rates. The states having an average occupancy of 50 to 60 per cent increased in number from 4 to 10 during the past year. There is still, as last year, one state whose general hospitals averaged less than 50 per cent occupied. Those having a rate of 60 to 70 reduced in number from 28 to 26,

and those states having 70 per cent or more of the beds occupied dropped from 16 to 12.

SUPPLY AND UTILIZATION OF BEDS IN GENERAL HOSPITALS

As a convenient and enlightening study on the supply of general hospital beds, a table is presented on page 1055 in which all the states are ranked according to in Nevada. Other states ranking high in the number of general hospital beds per thousand are: Arizona, 7.4; Wyoming, 6.0; California, 5.9; Massachusetts, 5.9; Washington, 5.8; Colorado, 5.7; Louisiana, 5.7; Florida, 5.1.

The outstanding fact to be observed is that those states which provide few beds are found to have a low

TABLE 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL C. PROPRIETARY

C. PROPRIETARY										иол				
		Individual and Partnership			Corporations (Profit unrestricted)			Total Proprietary				To		
Marginal No.	Hospitals Beds	Bassinets Patients	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	S Hospitals
1 Alabama 2 Arizona	19 67 25 62 14 62 32 52 11 18	3 26 1.11 3 26 1.11 5 27 7.31 5 10 89 7.91 6 10 88 7.91 6 10 88 7.91 6 10 10 88 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 10,05 6 111 13,55 6 111 13,55 6 111 13,55 6 111 13,55 6 111 13,55 6 111 13,55 6 111 13,55 6 111 13,55 6 111 13,55 6 111 13,55 6 150 10,07 7 32 1,55 6 150 10,07 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32 1,55 7 32	73 37 73 307 75 2,407 77 205 77 205 77 205 77 205 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 80 128 8	8 1 3 3 7 3 8 8 1 1 1 5 100 6 5 5 100 6 5 100 6 5 100 6 5 100 12 7 7 7 3 3 7 2 2 4 1 1 1 10 11 11 11 11 11 11 11 11 11 11	25 1,025 282 1,632 496 50	53 5 14 3399 2 2 . 6 65 311 32 145 225 13 145 226 222 11	37 27,232 7,555 46,742 4,316 934	311,733,1111 3811 1,733,1111 3811 1,733,111 1,733,111 1,733,111 1,735,111 1,735,111 1,735,111 1,735,111 1,735,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,731,115 1,	38 100 25 25 27 15 51 52 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1868 822 828 828 828 828 828 828 828 828	311 1038 866 91 166 65 151 120 230 75 74 99 155 102 210 228 127 72 225 127 225 127 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,045 11,	1,943 13,644 109,018 8,730 2,316 341 7,799 15,772 42,700 15,745 42,700 15,745 16,761 24,429 6,810 2,316 24,429 2,316 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,572 21,5	866 338 4,140 475 586 15 200 336 837 1,592 423 236 257 340 423 267 340 368 668 668 668 679 391 41 79 453 466 3,632 679 477 598 477 599 477 599 477 599 477 599 477 599 1,057 244 157 809 1,057 241 1,178 3,131 1,178 610 127	31 49 204 1 78 60 11 16 66 87 31 234 2 73 110 83 110 83 110 158 1 158 1 15
50 Totals (1941) 51 (1940) 52 (1939) 53 (1938) 54 (1937) 55 (1936) 56 (1933) 57 (1934) 58 (1933) 59 (1932) 60 (1931) 61 (1930) 62 (1929) 63 (1925)	1,174 28,95 1,190 29,87 1,188 30,10 1,183 29,95 1,204 28,49 1 255 29,91 1,310 29,42 1,435 33,38 1,522 25,75	7 5,212 0 4,843	0 15,040 0 14,955 3 15,^55 9 15,458 7 13,672 7 14,212 3 12,046 11 13,746 6 16 309	449 456 493 530 550 627	25,108 26,496 26,550 28,0% 28,511 34,946	3 021 2 989 3,236 3,516 3 629 4,357	494,967 463,654 450,759 470,136 507,077 497,457 532,590 458,303	15,686 16 154 15,630 16 477 16 462 18,697	1,623 1,646 1,681 1,713 1,734 1,882	54,066 56,375 56,743 58,042 57,007 64 859	7,841 7,745 7,793 8,282 7,985 8,741	1,040,851 963,694 958,619 955,699 1,015,436 935,254 946 587 824,616	30,735 31,109 30,885 31,935 30,134 32,909	4,494 35; 4,524 35; 4,486 34; 4,478 34; 4,406 33; 4,465 33; 4,525 33; 4,661 33; 4,758 33; 4,707 33; 4,707 33; 4,907 37; 4,907 37;

TOTAL NONGOVERNMENTAL

===						=
_						
ا'	otal o	of Tab	les 1E	an	d 1C	٠.
· _						Z
als		ets	4	teg.	8 8	ina
븚	800	뚧	5	Ħ	Sus	118
IO.	æď	3aS	ž.	Ą	e Pe	Ä
68	3,882	490	- 06	,824	2,308	1
31	1,756	204	29	,328	1,000	2
49	2,663	335	57	,328	1,470	3
264 78	18,636 5,606	2,889 587	431	,869 ,570	13,880 3,658	
60	7.723	1.167	162	.851	6,044	6
11 16	1,238 2,776	232 570	21 76	,945 ,882	724 2,314	5 6 7 8 9
66	3,545	532	. 70	915,	1,963	
87	2 027	544		,098		10 11
$\frac{31}{234}$	1,302 24,201	3,996	578	,441 ,266		12
73	0.014	1,110	107	00=	. 4 419	13
110 83	6,064 4,435	1,098 742	139	,230 ,574 ,496	3,943 2,894	14 15
71	4 571	549	101	,191 ,751	2 993	16
60	3.933	494	100	,751	2,666	17
51 51	2,570 6,808	470 692	111	,921 ,441	1,854 5,426	18 19
170	15,885	2,695	324	.460	11,820	20
158 153	13,710 8,971	2,304	928	,686 ,119	5 050	21 22
71	2,604	1,562 380	69	,938	1,347	23
104	9,539	1,326	198	.363	6.959	24
44 81	2,529 3,543	479 689	73	,720 ,340	1,654 1,979	25 26
5	195	42	4	,667	198	27
31 113	1,953 13,722	374 2,100	42 275	,980 ,227	1,°62 10,258	28 29
32	1,390	192	22	.867	754	30
393 129	50,684 7,639	7,148 997	953 109	,326 ,679	37,899 4,977	31 32
36	2,195	438	54	.386	1,435	33
171	17,367	2,628 590	434	,775	13,235	31 35
92 55	3,603 3,506	576	93	,286 ,399	2.401	36
278	35.507	4,944	663	.818	26,776	37
18 43	2,219 2,516	410 315	41 68	,524 249	1,743 1,661	3S 39
37	1.842	335	42	,298	1,173	40
78 279	4,532 11,505	596 1,824	111 326	,493 ,646	2 977 7,424	41 42
21	1,428	318	32	.910	933	43
24 82	2,143	224 731	32	,373	1,718 3 645	44 45
81	5,177 5,459	1,048	141	,962 ,485	3,803	46
62	4,850	566	124	912	3 251	47
140 19	10,062 385	1,752 97	224	593 753	6 9J2 195	48 49
4,494 3 4,524 3	358,870 352,556	54,669 51,380	7,933, 7,218	,5*6 544	255,147	50 51
4,486 3	349,880	40,100	7,144 6 813,	869	241,499 232 435	52
4,4°8 4,406	346,244 335,799	47,636 46,644	6 813,	795	2 9,019 225 556	53 51
4 465 5	332 SS1	45,593	6,711, 6,194,	026	211 GS1	55
4,522 3 4,585	333,427	44,893	5,424	102	200,589	56
4,585 4,661	333,427 330,213 332,573	44,650 44,649	5,424 4,999 4 892 5,178	444	185,098 184,197	57 58
4,100	150,466	44,572	5,178	598	184,197 193,277	59
4.907	32,591 336,143	44,572 44,232 43,281	5,322,	595	206 095 212 645	60 61
4.870	324,596	41,877			209 881	62

201,675 61

the number of general hospital beds per thousand of population. The table also gives for each state the percentage of occupancy in general hospitals and the percentage of population that entered general hospitals during the year, as well as the 1940 population census of the states.

The number of general hospital beds by states varies from 2.1 per thousand in Utah to 8 beds per thousand

rate of occupancy and, of course, a small proportion of the population making use of hospitals. For example, Utah, with 2.1 general hospital beds per thousand, shows an occupancy rate of 55.3 per cent, and its general hospitals were used by 3.5 per cent of the state's population Nevada, with 8 beds per thousand, had an occupancy rate of 63.4 per cent; 12.3 per cent of the population of the state made use of its general hospitals during the

TYPE OF SERVICE

	farginal No.	v ~ c	0 co 4 co 6	~ ∞ c	25	1222	92 22	ខាន	ននេះ	325	220	888	882	ឌ្ឌៈជ	32.20	33.55	444	. # t3	24:	8 20 20 20 20 20 20 20 20 20 20 20 20 20	D D == 01 == =
hroa	ensus versus	o :	2 ² : .	Ľ	∞	184	. ಚಟ	52	134	ģį.	٠.	17	339	₽.	189	•	## E	22	Ç1	3,388 3,388 3,343 3,243 3,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113 5,113	
se and Throat	einelia beilimbi	: ¥	201	6,2,0	751	5,9% 373	205 4,307	4,743	7,378	349	•	2 005	3,000	1 <u>2</u> 0	8,746	. 062	5,470 2,118	1,528	530	97,043 1,355 1,355 1,05,00 1,05,00 1,1 1,1 1,1 1,1 1,1 1,1 1,0 1,0 1,0	285 444444444444444444444444444444444444
Eye, Ear, Nose	stantesu8		20 m	,,,,				-+						:						201000000000000000000000000000000000000	
Ear	seds	Ι:	80 <u>17</u>	103	S.	245	88	100 227	188	8		3	637	.4	370	15	1 6 49	၁	1.7	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
Eye	eigilgsol	I :		П	1	€1 ™		61 14	H	н,	•	۳,	တက	· · ·	6-	H	O 61	ខា	7	44488844386	11815 118158
	dmitted Vverage Sensus	7	7 123 1 501 8 25		98 6	8 0 0 4 0 0 4 0 0 4 0 0 0 0 0 0 0 0 0 0		~1 00 g		207			ខភូន				216	ıa		1,662 1,504 1,504 1,482 1,536 1,576 1,576 2,423 2,620	1ಬಟಟ ಬ
Industrial	stanissa!	C	4,757 10,901 688		3,469	1 1,228 549 460 460 460 3.114	27,1	7 438	Š	6,270 $1,706$		760	388	2,603	•	•	6,817	158	•	45,201 45,837 45,686 41,688 41,882 41,882 69,690 69,690	88
Pag	Beds		275 615 46		143	20 20 31 310 320 310 310	68	763	3	2 <u>7</u> 22		۶	 378	8			es :::	ıs		38216 6921	
	Hospitals		es c. es		61	61 M M M			ı	~ ~		~	1014	г			6 453	1 1		39 2 960 33 2,792 40 3,215 37 2,992 36 2,833 44 3,159 113 5 5,21 113 6 5,23 111 5 6,53 111 6 6,53	
(Average Census) 12 8	383.23	162 23	31 5	ឱងទះ	£ 2	. 181 183 183	121	¥6.6	ž	292	£33	16 8 £	196 196	t	- 218	67	13 66	472 534 699 699 699 695 647 897	737 126 412 605
Į.	Patlents Admitted	375	5,511 253 75 80	4,375	46 243	2,859 707 136 124	88 Ž	000 g	1,416	2 2 2 2 3 3 5 5 5 5 5 7 7 8 7 8 7 7 8 7 7 8 7 7 8 7 8		6,947	3,815	4,531 274 274 275	3 916 3,976	oo.	£5.	267	1,060	64,874 3,60,518 3,78 3,81 3,81 3,81 3,81 3,81 3,81 3,81 3,8	ಷ್ಟ್ರೀರ್ ಚಿ
Maternity	Bassmets	252	21 50 51 20 50 51	136	25	12 8 5 K	e 21	37.	76	ည် စ	;	405	888	ដូនដ	160 160 160	c	25.22	5	815	25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.0000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000 25.000	
Z	Beds	22.23	834¢8	17. 82.	28	8EHE	#	171 100	183	128		320	882	881E	169	1	15.83	101	100	2.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5	255 <u>255</u>
l	eladiqeoH	थस	무원자다	· 61 ~		ଏ ପଟରା		అగా	6~ 6	0 H 61		က	ដើមខា	∞∺∽	20.1	г	ଟମ ଲ	*7.7	101	116 116 117 118 118 118 118 118 118 118 118 118	\$ CD 17 13 13
ï	Average Census	390 800	1,260 4,545 900 1,613	508	879	250 250 250 250 250 250 250 250 250 250	888 888	<u> </u>	35. 35.	122	210	\$\f\{\f\}	86.58 86.58	188;	18,5 18,5	257 969	2,25 72 184	189 189	(<u>5</u> 8	5577 2560 2560 2500 2500 2500 2500 2500 2500	372 707 784
losts	Patlents Admitted	844				2,026 5,026 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036 5,036	1,500 570 570 570	0,830	1,695 454 9,854	1818	147	736 5 736 3	_	2,738 2,230 2,230 2,230 2,230 2,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,230 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 2 3 2 3		60 60 60 60 60 60 60 60 60 60 60 60 60 6	112 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Tuberculosis	Bassinets				,	٦ ،	NI .	~8				, ;	2							64	}
Tu	Hospitais Beds	Н	27 7,249 13 1,363 17.46 1,746 222			* · ·	-i :	23. 4,470 23. 4,470 2,775	भं ०	î	•	₹ 6	<u>2</u> ~ 0	2 4 5 2 4 5 2 5 6 7 2 6 7 2 6 7 2 7 3	Ģ.	- -1	21 6	12 1,530 6 1,346 1,145	C1	417 82,365 480 75 972 480 75 972 508 76 973 508 76 751 195 70 663 195 70 663 509 65 929 609 65 929	ತಿಷ್ಟಿ≋ ∤
ţ																			φ1 		
fa1			29,922 5,922 5,659 9,308 1,657		500	14.40		31,320	3,50	5,69	2,879	991	8001 1503	8 852	5,76	7,534	64.6	8,813	16,163	603,179 590,179 562,337 546,936 524,093 507,269 488,481 474,787 455,473	355,407
nd Mental	Patlents Admitted		2,912 2,886 2,182 3,886	1,925 2,836 6,636	266	8,540 8,540 1,484 1,484	2,307	200,11 200,8 200,12 200,12	3,081	1,041	207	246	3,314	3,467	1,014	£95	748 748	12.7	392	208,592 170,376 170,376 170,240 195,703 195,624 173,009 173,415 172,415 170,833	
us ar	Basslaets	~	· ·	•10	•		• •	240 202			: 4	· &				- w.v.	°.;		767 J	611000000000000000000000000000000000000	- 0 m =
Nervous and	Hosbitals		34 32,433 9 6,408 15 11,587 2 1,759								2,278	99(10 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	8 9,24 5 6,15 47,20	4 20	20 00 20 00	2,301 1,5301 1,5301	e 0.5	3 1,66	556 638,144 (100 602 100 600 600 500 500 600 600 500 500 600 6	22 414 9 23 194 90 26 97 97 97 97 97 97 97 97 97 97 97 97 97
ι																					1
{	Avernge SusnsO																			263 614 202 7991 202 7991 202 7991 203 7991 201 7992 201	000 FG
	Patients Admitted	142,204	701,264 167,537 166,040 24,569	101,804 0 0	· ~ ~	0~120	⊶ e1 o	co en r	 ~ .			-	-							0,000,000,000,000,000,000,000,000,000,	
General	Bassinets								1,340	752 190	2,707 2,707	7,738 1	1,136 137 2,815	585	27.5	1,245	5883 5883	1,916 1,916	161	25,025 25,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20,025 20	76 2 9
			40,450 6,70 7,009 1,340												8 508 2 754	25,014		12 3.7 7.1 21		25 11 11 11 11 11 11 11 11 11 11 11 11 11	35.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75 25.75
	Hospitals	222	242 26 20 20 20 20 20 20 20 20 20 20 20 20 20	388	æ2i	ឌ្ឌឌ្ឌឌ	823	공단당	868	388	88	### ###	5 7 2 2 3	를 교합.	185	£8	151 E	38£			2독일
			<u>.</u>																		.
		•	lin o Jent c	Continu			_	et 114	z .		pehire	0.0	kota	anda	rolina kota	చ	: 5	glnfa	к 19 1 1)	30000000000000000000000000000000000000	762
	,	Alabama Arizona. Arkansas	Collifornia Colorado Connecticut Delaware	orlda orga	rlto nols	Ibahana Iowa Kansas Kantucky	Maine Maine Maryhand	Mustachist ils Michigan Vinnesota	seiseini seonri	braska vada	A Hann	10 V 10 V	orth Da	regon may h	outh Ca	enne ser esna esna fab	Vermont Virginia Washington	Vest Vir	resonner Potals (1		
	_	- 22 - 2 - 22 - 22 - 22 - 22 - 22 - 22	25 <u>85</u> 55	200	₹Ē.	eers. Eers		ran Rana	eză Sec	ZZ.	ZŽŽ Ç≅Ç	i ===	žõž 1722	SAG Luc	**** ***	- <i></i>	222 222	=== ====	- <u>:</u> -	: ::::::::::::::::::::::::::::::::::::	25 /
•0	Z langran ,						,														

O)	InnigraK 100040-0-00-051111111112578599999999999999999999999999999999999	833384844 43838
	09.09.09.09.09.09.09.09.09.09.09.09.09.0	,087,039 ,026,171 ,026,171 ,026,171 ,026,176 ,04,436 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,05,516 ,
<u>s</u>	gradianta 4 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	11,706 188 10,087,548 10,087,548 10,087,548 10,879,544 10,879,544 10,879,544 10,879,589,151 7,175,982
Totals	1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,1016 1,	58,764 58,764 58,764 58,764 58,764 58,926 58,926 58,926 59,936 51,494 41,939 43,313
]	abou by 419, 52, 52, 52, 52, 52, 53, 54, 54, 54, 54, 54, 54, 54, 54, 54, 54	, 324 381 , 226, 245 , 105, 026 , 106, 721 , 006, 721 , 027, 046 , 014, 354 , 075, 879 , 075, 879 , 075, 879 , 075, 879 , 075, 879 , 075, 879 , 075, 879
{	Hartogs of State 1	6,738 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SE	15 20 17 38 37 12 12 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	2 673 2 583 2 583 2 720 7 063 7 063 10,240 6 643 6 643 7 043 6 941 6 941
Other Hospitals	etnenta 7	22,764 23,463 118,882 36,165 47,569 1114,849 35,604 35,604
Other	1. 22 22 24 14 23 25 29 30 Beds	230 230 230 230 230 230 230 230 230 230
All	A. C. L. C.	201 201 201 201 201 201 201 201 201 201
₹ (Average Average 133 Centrals 134 Centrals 13	20 593 15 318 18,200 14,730 14,530 17,831 17,831 11,859 11,859 11,624 11,624 11,537 11,537 11,537 11,537
Hospital Departments of Institutions	the street of th	174,335 156,436 15 156,436 15 156,436 15 157,637 14,13,13 147,637 17 171,037
of Insti	abod 80 80 80 80 80 80 80 80 80 80 80 80 80	7,037 118 1,702 62 1,501 40 1,501 40 1,821 61 1,522 13 1,522 13 1,522 13 1,532 10 1,530 10 1,530 10 1,530 10
Ħ	startigeoff 4 "uding woundpreadur . wowown und gangong . u40 uatua	25
and Rest	Average 5 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 7 967 7 967 7 967 7 967 7 967 8 4 430 3 3 580 9 3 954 8 4 420 7 034 4 588 6 580
	### 1	36 38,862 35 36 504 36 34 191 38 29 411 38 22 504 38 22 504 50 27 383 50 27 383 51 25 029 77 25,678
Convalescent	Hospitals 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	136 9 030 142 8,721 121 5 846 120 5 566 120 5 566 137 5,456 173 5,456 173 5 127 173 6 127 173 6 174 171 7,374 171 7,374 171 7,374
-	Aretage A. 13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2,200 2,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,200 3,00 3,
olation	stanizand	21 36 299 25 40,513 6 30,279 6 30,279 13 37 295 84 37,653 16 40 704 16 40 704 17 41,004 18 41 874 19 41 874 19 41 874 19 41 874
Is	Signification 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	572 6,336 60 7,100 60 7,100 60 7,100 61 6,836 61 6,836 61 6,836 71 7,334 710 7,314 710
ſ	. 9998 888 3 1858 8 1858 8 1858 8 18 18 18 18 18 18 18 18 18 18 18 18	7,588 5,758 5,758 5,758 5,758 5,177 1,964 1,964 1,768 4,156
Orthopedic	shontang	10 38 220 23 28 24 25 25 25 25 25 25 25 25 25 25 25 25 25
0	sleifigeoH	82 7,783 81,762 82 7,706 82 7,706 83 7,706 83 6 33 89 6,401 89 6,53 80 6,53 81 7,13 81 7,13 81 7,13
	7885 . 8 . 4 975 8 1188 3 1 1288 3 2 Consus	1,130 1,254 3,524 3,524 3,121 3,115 3,121 3,122 3,122 3,123 3,123 3,123 3,123 3,123 3,123 3,123 3,123
Children's	11.00	25,455 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25,137 25
Chil	258 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	6,047 177 178 178 178 178 178 178 178 178 17
{	and or the state of the state of the Hospitals	88888888888888888888888888888888888888
	t Columbia ctts ctts ctts nin nin nis nis nis nis nis nis nis ni	
	Inhama Ichona Realisas Alifornia Olorado Ol	648 (341) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (441) (4

year. Oregon, the twenty-fourth state, or midway point, in number of general hospital beds per thousand, shows an occupancy rate of 73.0 per cent, and 9.9 per cent of its population entered a general hospital. The District of Columbia is not comparable, evidently because of the use of its hospital facilities by a considerable number of persons not enumerated in its census of population.

Average figures for the entire country show 4.1 general beds per thousand of population, an average occupancy of 68.2 per cent and 8.1 per cent of the entire population entering general hospitals as patients.

The table serves to emphasize the fact that hospital facilities must be provided not according to any abstract formula but in accordance with the requirements of the people in the community under consideration.

The map entitled "General Hospital Beds per Thousand of Population" tells the story of general hospital facilities in graphic form.

BIRTHS IN HOSPITALS

Response to the question "How many live births in the hospital during the year?" brought a total of 1,404,940. The total number of births reported in the United States both in and out of hospitals is not obtainable for the year 1941. In 1940 it was 2,360,399. Increase in births in hospitals in 1941 over those in 1940 was 190,448, which is by far the greatest increase recorded for this item between any two consecutive years. The gain of 1940 over 1939 was 114,779. In 1929, the first year in which the annual census of hospitals recorded the hospital births, there were 621,896. The table on births in hospitals gives some indication as to just what groups of hospitals are furnishing the maternity services and also shows interesting trends. As to type of service general hospitals report 1,342,195 births, and maternity hospitals 51,484. There is considerable increase from year to year in the number of

Births in Hospitals

Control:	1929	1940	1941
According to Ownership or Control:	2,296	9,423	11.811
Federal		28,943	32,113
Clando	9,125	61,963	66,689
Classactor	17,527	98,433	112,962
	45,787	14,449	15,497
City-county	8,806	14,449	10,107
Ofty-county		210.017	239,072
Total governmental	83,541	213,211	259,012
Total governmenta	000 500	394,765	463,111
Church	209,726		1001
	1,730	107 000	561,844
	******	485,236	001,011
Nonpront associations	4,327		
Nonpront associations Industrial Independent associations	283,136		
Independent associations			7 001 053
Total nonprofit		880,001	1,024,955
Total nonprout		67,399	79,734
Individual and partnership	39,436	50 601	61,159
Individual and partnership		53,881	02,100
			140,913
Total proprietary		121,280	140,010
Total proprietary			7.707.000
	538,355	1,001,281	1,165,868
Total nongovernmental			
man of Service:		co co.	1,342,195
According to Type of Service: General	566,177	1,163,694	51,484
General	53,019	48,126	7,946
General	862	1,984	398
:	277	172	
	1,561	516	2,917
· · · · · · · · · · · · · · · · · · ·			- 121.010
thele	621,896	1,214,492	1,404,940
Total births in all hospitals	02-100-		

births in the hospitals operated by federal and state governments as well as in the county and city hospitals. Church related hospitals reported the births of 463,111 infants as compared with 394,765 last year. Other non-profit associations reported 561,844 as against 485,236 last year.

The hospital births by states are given in the column headed "Births" in one of the accompanying tables.

There are nine states in which the number of births in hospitals exceeded 50,000, headed naturally by New York, which reported 180,037 births, followed by Pennsylvania 112,392, Illinois 99,997, California 85,763, Ohio 82,677, Michigan 69,670, New Jersey 60,761, Texas 59,564 and Massachusetts 57,642.

NUMBER OF PATIENTS OPERATED ON IN ALL HOSPITALS

In this, the twenty-first, annual census all registered hospitals, including those approved and those not approved for intern or residency training, were asked for the first time to "indicate number of patients oper-

Patients Admitted, Patients Operated on, Births, Deaths and Autopsies in All Hospitals

	Patients	Patients			Autopsic
	Admitted	Operated or	1 Births	Deaths	Reported
41	156,116	59,930	14,243	5,994	1.000
Alabama		19,558	5.625	2,183	440
Arizona	53,828 94,828	35,913	6,730	3,228	373
Arkansas	D4,020		85,763	34,850	10.872
California	771,527	314,995 51,483	12,281	5,267	1,732
Colorado	120,063	92,689	25,505	7,861	2,578
Connecticut	178,509	12,296	3,711	1,271	342
Delaware	25,315		17,465	5,526	2,778
Dist. of Columbia	126,160	57,718 62,985	16,889	7,548	1.166
Florida	169,741	90,321	21,047	7,232	1,285
Georgia	233,605	18,411	6,428	1,525	143
Idaho	41,506		99,997	37,310	9,061
Illinois	779,644	374,171	35,938	11,681	2,088
Indiana	246,402	125,998	25,978	7,849	1,424
Iowa	190,329	85,120	15,934	5,593	1,290
Kansas	142,975	59,564	13,795	6,596	1,090
Kentucky	158,141	69,807	22,781	8,872	2,818
Louisiana	261,882	87,384	7,251	2,835	441
Maine	66,112	32,871	19,452	8,134	2,571
Maryland	166,715	80,314	57,642	21,813	6,489
Massachusetts	474,108	231,535	69,670	20,795	5,367
Michigan	495,088	233,746	26,569	12,323	3,735
Minnesota	294,894	126,007	8,606	4,139	254
Mississippi	117,697	45,227	31,226	13,958	4,934
Missouri	294,612	131,848	8,505	2,520	262
Montana	64,218	21,767	11,663	3,725	1,186
Nebraska		46,258	1,517	577	88
Nevada	14,119	4,515	6,904	2,407	437
New Hampshire		26,347	60,761	20,556	4,626
New Jersey		172,140	4,214	1.597	174
New Mexico		10,818	180,037	74,445	20,450
New York		849,773	24,150	9,238	1,301
North Carolina		116,990	7,294	2,193	581
North Dakota		24,285 267,311	82,677	27,448	6,954
Ohio			16,815	5,215	738
Oklahoma		58,724	14,283	4,333	1,535
Oregon		48,300 423,734	112,392	37,889	9,220
Pennsylvania		27,376	8,004	3,103	818
Rhode Island		49,560	11.091	5,448	491
South Carolina		20,578	6,072	1,490	207
South Dakota		86,088	18,383	8,079	1,434
Tennessec		213,037	59,564	17,030	2,786
Texas	549,315	21,997	9,769	1,688	418
Utah	44,624	15,466	3,987	1,436	274
Vermont	36,730	99,707	19,671	8,916	1,531
Virginia		73,816	22,902	8,004	2,201
Washington	215,480	74,534	10,557	5,067	1,005
West Virginia	. 141,827 . 290,799	146,387	38,976	12,438	2,451
Wisconsin		8,222	3,237	933	91
Wyoming	29,422				- DT C (1)
Totals	11,596,188	5,201,650	1,401,940	510,158	125,640

ated on." The numbers reported in answer to this question are published by states, alongside the number of patients admitted, in an adjoining table. The total number of patients operated on is 5,201,650, or 44.86 per cent of the patients admitted.

In making up the questionnaire for the census, much consideration was given to the wording of this and similar questions. The form of question just quoted was finally determined on as being the most appropriate for this time, since confusion sometimes results when attempts are made to define the various types of operative procedures.

The response to this question has been, in the main, quite satisfactory and the question was followed up whenever necessary. As would be expected, the states that reported the highest number of patients operated

on are New York 643,773, Pennsylvania 423,734, Illinois 374,171, California 314,995, Ohio 267,311 and Michigan 233,746.

Those states in which the number of patients operated on exceeded 50 per cent or more of all patients admitted were Rhode Island 55.22 per cent, Pennsylvania 54.71 per cent, West Virginia 52.55 per cent, Connecticut 51.92 per cent, New Hampshire 51.19 per cent, Indiana 51.13 per cent, Nebraska 50.68 per cent and Wisconsin 50.34 per cent.

The states in which the number of patients operated on were less than 35 per cent of all patients admitted In response to the question as to the number of necropsies, there is reported a total of 125,640 necropsies, or 24.63 per cent of the number of deaths reported. Owing to the Council requirement of a minimum percentage of necropsies in the approved internship and residency, hospitals and the fact that hospitals so approved had a majority of admissions, it is not surprising that the greater number of necropsies would be performed in the approved hospitals, which reported a total of 96,151. These hospitals, totaling 1,070, had an average necropsy rate of 38.4 per cent, whereas all other registered hospitals had a necropsy incidence of 11.3

Technical Personnel in All Hospitals, 1941

						1 cen	nicui	rers	onnet	111 2	111 11	<u> ospiii</u>	113, 1	741								
	Labor Techn				Dieti	tians	Phy Thera	sical pists	Phai cis			ord	Oti Libra	her rians		lical nog- hers	tio	upa- nal apists	Der Hygie	ntal enists	Ser	cial vice rkers
Alabama Arizona Arkansas California. Colorado Connecticut Delaware Dist. of Columbia. Florida Georgia Idaho Illinois Indiana Iowa Kansas Kentucky Louisiana Maryland Maryland Maryland Maryland Mississippi Mississippi Mississippi Mississippi Missouri Montana Nebraska New Hampshire New Hampshire New Hort North Carolina North Dakota Ohio Oklahoma Oregon Pennsylvania Rhode Island South Dakota Tennessee Tevas Utah Virginia Washington Washington Wsyoming	Techn Full Time 102 49 589 114 121 127 128 129 129 128 129 129 129 129 129 129 129 129 129 129	icians Part t Par	Techn	icians Part	سہ	Part	Thera Full Full Full Full Full Full Full Ful	Part	Full 12 17 180 180 180 180 180 180 180 180 180 180	ts Part	Libra	rians Part	Libra	rians Part	Full		Thera	Hiplists Startner 4 8 5 42 9 17 1 3 4 4 1 16 9 7 4 4 5 3 1 1 3 2 10 0 7 7 1 6 2 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Hygie Full	enists	Wo	kers Jolun-
Total all hospital General hospitals. Other than gener	8,169	1,323	5,534 4,781 753	1,535 1,195 340	5,548 4,406 1,142	459 335 124	2,505 1,781 724	602 443 159	2,382 1,982 400	497 395 102	3,035 2,640 395	897 732 165	678 481 197	464 315 149	6,016 3,903 2,113	990 683 307	1,882 317 1,565	350 124 226	919 5<0 339	220	2,930 1,905 1,025	1,225 972 253

were Wyoming 27.95 per cent, New Mexico 28.55 per cent, Nevada 31.98 per cent, South Carolina 32.8 per cent, Louisiana 33.37 per cent, Montana 33.90 per cent and Washington 34.26 per cent.

DEATHS AND NECROPSIES IN ALL HOSPITALS

The census questionnaire included the question "Number of deaths." The same question had been included in the annual census for at least two previous years. The total number of deaths reported from all the hospitals was 510,158, or 4.4 per cent of the patients admitted. Considering that all hospitals are accustomed to furnishing this information, it is believed that the figures presented in the column headed "Deaths" are fairly accurate.

per cent on the basis of 260,068 deaths and 29,489 post-mortem examinations last year.

In view of the educational importance of necropsies, this subject is discussed at greater length in that part of the article relating to internships, residencies and fellowships.

TECHNICAL PERSONNEL IN HOSPITALS, 1941

The census of technical personnel in hospitals reported in The Journal of March 27, 1937 was the first that rendered information complete enough for practical use. At that time the data received were tabulated to present by states the number of hospitals employing technical assistants and the number employed. The current census includes four groups not

previously reported, i e medical record librarians, other librarians, medical stenographers and social service workers, thus enabling the Council to present a more complete picture of the services rendered in hospitals by trained personnel other than physicians.

In the present census the full time and part time workers are enumerated separately, which reveals that only 18 per cent of the 50,326 individuals enumerated are serving on a part time basis. The part time group not only includes persons who are employed part time because of economic reasons but also in some instances persons who are offering their services to institutions on a voluntary basis.

Comparison of data received from all hospitals with those from general hospitals indicates that general hospitals employ nearly 75 per cent of all technical personnel engaged in hospital work and 75 per cent of all

the full time employees

PHISICIAN SUPERINTENDENTS, NURSING PERSONNEL, PRACTICAL NURSES, ATTENDANTS AND ORDERLIES

It is found that 2,133 physicians are serving as superintendents or administrators of hospitals. The proportion of superintendents thus qualified is 33.54

Physician Superintendents, Nursing Personnel, Practical Nurses, Attendants and Orderlies

=======	===							
			School	s				
			of		Grad	Prac		
	Hos	M D	Nurs	Student	uate	tical	Atten	Order
	pitals		ing	Nurses	Nurses	Nurses	dants	lles
	pitais	-	_				1,138	876
Alabama	ر9	27	29	1,248	1,079	101 40	370	112
Arizona	60	31	4	328	507	295	1.206	489
Arkansas	63	20	11	452	741	910	6,935	1,689
California	368	10a	46	3 006	1,023	200	1,093	276
Colorado	99	28	20	1,112	1,414	242	1,881	383
Connecticut	83	31	22	1,652	2,460 234	29	256	67
Delaware	17	8	7	384	1.553	345	1,387	648
Dist Columbia	29	15	10	897		154	1,548	374
Florida	10ə	31	14	895	1,736 1,646	361	1,576	826
Georgia	127	57	16	1,291	329	33	189	15
Idaho	44	13	9		8,125	699	5,780	861
Illinois	311	80	104	6 83s	2,277	490	1 653	448
Indiana	137	35	28	2,244 2 169	1,823	282	1,193	193
Iowa	149	36	31		1,098	100	724	192
Kansas	117	38	38	1,721	1,239	320	1.795	230
Kentucky	98	40	17		1,867	182	1,797	732
Louisiana	83	45	14 18		692	56	450	47
Maine	65	22	29		1,642	692	1,170	910
Maryland	77	37	72		5,907	485	ອ 585	1,189
Massachusetts	246	95	39		5,499	769	3,276	971
Michigan	252	77 74	34		3,148	558	1.734	340
Minnesota	216	62	37		598	73	766	148
Mıseissibbi	97	54	35		2,512	485	2,738	441
Missouri	147	16	12		553	141	175	57
Montana	61 98	27	14		925	280	610	71
Nebraska	98 20	9			18a	G	79	27
Nevada	20 43	7	14	663	534	18	434	38
New Hampshire	166	47	59		3,954	481	2 931	1,007
New Jersey	53	19			393	59	401	72
New Mexico	554	200			21,653	3,219	17,356	2,689
New York	166				2 274	371	2 450	739 21
North Carolina	48				353	21	325	993
North Dakota	247			3 5 386		839	4,171	96
Ohio	129				897	364	1,008	219
Oklahoma	74		17		1,130	65 7-6	668 5 608	1,406
Oregon Pennsylvania	350		133		S 288	756 32	5 003 5 003	99
Rhode Island	20				823			919
South Carolina	65							30
South Dakota	50			3 620			711	479
Tennessee	100	56						
Texas	369							
Útah	3:			6 450				
Vermont	3							
Virginia	117							532
Washington	120							429
West Virginia	18						2 352	
Wisconsin	22			3 2,113 3 78				40
Wyoming	3	1 1	2	0 10				
	0.0	0.100	1,44	93 977	112,842	17,332	95 002	24 937
Total	6 358	2,133	, 1,44					

per cent. This proportion has not varied more than 1 or 2 per cent for over a period of ten years. A further analysis of the types of hospitals that are thus served by physicians will be made.

Schools of nursing number 1,448 with 93,977 students In 1926 there were 2,155 schools with 76,527 students, and in 1936, 1,478 with 72,174 students

In response to the question as to how many graduate nurses, and also how many practical nurses, attendants and orderlies are employed at nursing by hospitals, we have the total of 112,842 graduate nurses, 17,332 practical nurses, 95,002 attendants and 24,837 orderlies

Necropsy Performance in Approved Hospitals—1941 (See Page 1068)

	Emp			pitals loying Interns esidents	Em ing dents	pitals ploy Resi Only	All Ap	tal— proved pitals
State	Deaths	Autop	Deaths	Autop	, Deaths	Autor	Denths	Autop sies
	282	75	1.353	426	506	114	2,141	61a
Alabama			1,000	420	148	43	525	215
Arizona	377	172	136	27	48	10	695	186
Arkansas	511	149			1,217	585	15 089	7,472
California	3,767	1,697	10,105	5,190 773	618	150	2 914	1,275
Colorado	1,050	352	1,246	900	738	203	5,517	2,2/2
Connecticut	2,969	1,169	1,810		107	34	676	209
Delaware	382	153	187	72		460	4,405	2,478
Dist of Columbia		327	3,277	1,691	744	10	1,818	498
Florida	522	109	1,258	369	3S 90	66	2,823	954
Georgia	1,139	216	1,576	672			20,003	6 793
Illinois	6,147	2,026	10,348	3,558	3,603	1,214	4,942	1,618
Indiana	1,961	411	2,192	1,015	769	192	2,444	861
Iowa	1,643	437	584	348	217	76	1,374	695
Kansas	571	255	645	370	158	73		749
Kentucky	1,293	296	1,364	420	102	33	2,709	2,041
Louisiana	1,722	746	2,962	1,289	52	- 6	4,736	294
Maine	831	280			40	14	871	2 968
Maryland	240	163	4,372	1,906	390	199	5,002	5 664
Massachusetts	5,30a	1,523	4 398	2,564	3,433	1,577	13,136	4 192
Michigan	2,227	741	6,064	2,549	2,802	902	11 093	2,539
Minnesota	1,717	745	2,186	1,432	959	362	4,862	14
Mississippi	•				46	14	46	4,118
Missouri	1,932	778	4,644	2,792	1,423	548	7,999	54
Montana	227	54					222	614
Nebraska	641	207	517	225	471	212	1 629	226
New Hampshire	103	33	125	105	29a	88	523	3 737
New Jersel	7.169	1,912	4,159	1,382	1,716	438	13 044	16 365
New York	9 499	2,808	28 236	10,850	8,115	2,707	40,900	714
North Carolina	709	208	979	422	464	84	2,102	207
North Dakota			153	135	194	72	347	5 561
Ohio .	2,713	840	10,093	3,996	2,081	725	14,887	423
Oklahoma	647	135	773	285	14	3	1 434	1 000
Oregon	184	9a	1.499	798	303	112	1 9 6	
Pennsylvania	9,487	3,130	10,740	5,735	2,280	713	22 507	9,578 GJ3
Rhode Island	670	212	496	236	486	20ə	1 652	401
South Carolina	1.016	166	559	235			1,575	
Tennessee	939	192	3 200	915	268	63	4 407	1,170 1 9°0
	3,021	894	2 590	825	861	201	6 472	330
Texas	1,041	330					1,041	
Utah	128	44	165	73			293	117 886
Vermont	657	243	1.334	457	415	186	2 406	
Virginia	2 642	793	1,297	572	657	402	4 596	1 767
Washington	1.067	297	-,20,		779	287	1 846	581
West Virginia Wisconsin	2,713	850	1,953	715	488	181	5,154	1,746
Totals	82 260	26,263	129,675	56,324	38,155	13 564	250 090	96 151

HOSPITAL FACILITIES NOT IN THE REGISTER

The facilities that are omitted from the list of registered hospitals are of two types: first, those that follow methods and practices such as are generally recognized as unethical or dangerous and that therefore need complete change of policy before being recommended to the public. Their number at the present time is 542. Their capacity, according to the latest available information is 16,267, or less than two thirds of 1 per cent of the facilities furnished by the hospitals recognized in the Register.

A second class of facilities not appearing in the Regis ter includes emergency stations, clinics, offices and so on, with some facilities for bed care attached or available. They are recognized as ethical and valuable auxiliary facilities to the hospital system. Most of these unclassified facilities have three to ten beds each, which are used as occasion demands. Some of them are sick-rooms attached to small custodial institutions. The bed capacity of these institutions, usually spoken of as unclassified, is too variable to be positively enumerated.

RESIDENCIES AND FELLOWSHIPS INTERNSHIPS.

(As of March 1, 1942)

NUMBER OF INTERNSHIPS

The increase of internships from 1914 to 1942 is illustrated in table A, showing the number of hospitals and available internships in relation to the annual output of American medical colleges. When the first list was published by the American Medical Association in 1914 there were 508 general hospitals approved by the Council, 2,667 internships available and 3,594 medical graduates. In addition there were 60 special hospitals and 35 state institutions and hospitals for the insane that offered a total of 428 internships later classified as residencies in specialties. Thus 603 general and special hospitals supplied 3,095 internships, but only 2,527 appointments were made, indicating that 1,067, or approximately 30 per cent of the medical graduates, did not seek additional hospital training.

Internships continued to increase at hospitals found a growing need for the services of interns not only to fulfil the educational requirements of the Council and the standardization program of the American College of Surgeons but to keep pace with the rapid progress of medical practice and the introduction of new methods of diagnosis and therapy. It was not until 1926, however, that available internships began to exceed the number of students graduating each year, although an exception occurred in 1922, when the senior class was considerably reduced on account of the earlier influence of the war. From then on there has been a steady increase in educational facilities for interns even beyond the annual needs of the graduating classes, which have remained fairly constant in size since 1934. Some of the increase has been produced by the qualification of additional hospitals, yet the enlargement of intern staffs resulting in many instances from an expansion of bed capacity or rising admission rate and average daily census has also been a significant factor. It should be noted that the proportion of medical graduates seeking hospital appointment has increased from approximately 70 per cent in 1914 to 99 per cent in recent years. This expansion of internships has been made possible by the whole hearted cooperation of a large number of hospitals throughout the country, which have not only supplied current needs but have created a sufficient reserve to meet any new demands that may be placed on them from time to time. According to reports received in January 1942, 7,228 internships are now available annually in the 732 hospitals approved for intern training by the American Medical Association.

NUMBER OF VACANCIES

While it would seem that the number of available internships has been excessive in recent years, it must be taken into consideration that many of the surplus appointments are filled by second year interns, foreign graduates and applicants from the medical schools of Canada and several of the Central and South American countries. In 1939, when there were 5,089 medical graduates in the United States, the approved intern hospitals reported a total of 7,448 interns actually on duty. According to information received at that time, the number of vacancies was only 317. Further reports also seem to indicate that the demand for interns has not greatly exceeded the supply of available candidates except perhaps in the last two years. In January 1940,

for example, after the annual reports on internships had been received, it was found that 176 hospitals had 344 vacancies: 60 in public hospitals and 284 in institutions under private control. By January 1941, however, the number of vacancies had increased to 615 in 270 hospitals, and reports received in January 1942 show a total of 1,128 unfilled positions in 437 of the hospitals approved for intern training (see table B). These institutions, however, employ 201 second year interns under the classification of mixed residencies, so that the present shortage might be considered as only 927. This coincides with the reports from the approved hospitals showing that 7,219 interns are currently employed whereas 8,181 positions are actually available.

FUTURE NEEDS

It is obvious that an exact balance cannot always be maintained between the number of available internships and the annual supply of medical graduates, since variations may frequently occur not only in the enrolment of medical students but also in the number of hospitals that wish to participate in the training of interns. In order that all students may obtain acceptable training during their fifth year of medicine, it is usually necessary that a surplus of qualified internships be available, as eligibility requirements and individual preferences may limit the assignment of interns in certain hospitals. When any considerable excess develops, however, it becomes increasingly difficult for many hospitals to secure sufficient interns to maintain a satisfactory educational program unless the training schedule can be bolstered by the addition of second year men. If this is not possible, a solution may perhaps be found in the establishment of mixed residencies or in the employment of salaried house officers outside the scope of an educational service. In many instances it will no doubt become necessary for the attending physicians and their assistants to take over some of the functions ordinarily assigned to interns and residents. although certain routine procedures might well be allocated to qualified nursing and technical personnel.
As regards future needs, it is encouraging to note

that if medical students and interns avail themselves of the War Department plan described in The Journal, Feb. 21, 1942, pages 633-634 and secure deferment during their period of undergraduate training there will be no material reduction in the number of interns available for hospital service. However, it is quite likely that some of the civilian hospitals will experience a further shortage in view of the increasing demand for interns in federal hospitals, the reduction of the longer services to one year and the appointment of additional interns in some institutions to compensate for the loss of resident physicians.

Under present conditions it would seem particularly essential that all intern hospitals cooperate in maintaining as uniform a distribution of interns as is practicable in relation to the clinical and educational functions of the various institutions. This will require first of all a reappraisal of the needs of individual hospitals, a task that should be undertaken jointly by the superintendent and the members of the intern committee. Economy in the use of interns can thus be achieved not only from a numerical point of view but also in relation to individual duties and assignments. Obviously the utilization

of an excessive number of interns in any institution will create a corresponding deficiency in the remaining hospitals. In this connection it can be mentioned that the average intern-patient ratio in the hospitals approved for intern training is usually one intern to six hundred annual admissions.

Table A.—Number of Internships, 1914-1942

	Number of Hospitals	Available Internships	Medical Graduates (United States)
1914	508	2,667	3,594
1916	619	2,709	3,518
1920	469	2,960	3,047
	482	2,962	3,186
1921,	492	3,065	2,520
1922	500	3,119	3,120
1923	518	3,269	3,562
1924	528	3,832	3,974
1925	554	4,727	3,962
1920	578	4,952	4,035
1927	611	5,109	4,262
1928	624	5,409	4,446
1929	654	5,531	4,565
1930		6,154	4,785
1931	674	6,261	4,936
1932,	696		4.895
1923	689	6,204	5,035
1934	676	6,204	5,101
1935	697	6,443	5,183
1936	705	6,759	5,377
1937	712	7,167	
1938	720	7,354	5,194
1939	734	7,833	5,089
1940	732	6,791*	5,007
1941	735	6,874*	5,275
1942	732	7,228*	• • • • •

^{*} Internships available annually.

TYPES OF INTERNSHIPS

Three types of internships are approved by the American Medical Association-rotating, mixed and The most common is the rotating service, which provides training in medicine, surgery, pediatrics, obstetrics and their related subspecialties together with experience in laboratory and roentgenologic diagnosis. The mixed internship covers more than one of the clinical specialties but does not include all of the divisions listed. A straight internship is one that provides supervised experience in a single department and may be approved if limited to medicine, surgery, pediatrics, obstetrics, obstetrics-gynecology or pathology.

Of the 732 hospitals currently approved for intern training, 660 offer a full rotating service, 27 have mixed assignments, 18 provide straight internships, 17 have both rotating and straight services, 5 have mixed and straight services, 2 have rotating and mixed services,

while 3 hospitals furnish all three types. Since the intern year is mainly a preparation for general practice and a prerequisite for subsequent training in special fields, it is quite logical that most graduates should prefer a full rotating service so as to gain wide experience in relation to the various aspects of modern medicine. Actually 6,226, or 86.1 per cent, of the 7,228 annual internship appointments are now of the rotating type, while 757, or 10.4 per cent, are straight services and 245, or 3.4 per cent, mixed.

LENGTH OF INTERNSHIPS

Reports from 729 intern hospitals in 1939 showed that 578 had internships of twelve months duration, twenty-six offered services of eighteen months, while 84 listed assignments of twenty-four months or over. Six, however, had other schedules ranging from fourteen to twenty-two months and 35 had internships of varying length as, for example, twelve and eighteen months, twelve and twenty-four months or similar combinations.

A study completed in January 1942 shows that 608 of the approved hospitals are now offering twelve months

internships, 17 have services of eighteen months and 71 are in the two year group. Twenty-five hospitals have both twelve and twenty-four months assignments, whereas 2 have combinations of twelve and eighteen months, 1 twelve and fourteen, 1 eighteen and twentyfour, 1 twelve and twenty-five, and 1 twelve, eighteen and twenty-four. Five other hospitals offer schedules of twenty, twenty-one, twenty-two, thirty and thirty-six months respectively.

Already many of the longer internships have been reduced to one year in conformity with the military needs of the country, while others are changing at the beginning of the new intern year in July. A few apparently will retain the two year plan but will no doubt offer a complete internship during the first twelve months, so that adequate training can be assured to those who may be called to military service at the end of the regular intern year.

NECROPSY PERFORMANCE IN INTERN HOSPITALS

The importance of necropsy performance received early recognition, as evidenced by the request for information concerning necropsies in the hospital surveys of the Council in 1913, 1915 and 1918. Moreover, the

TABLE B .- Vacancies in Approved Intern Hospitals

	Janua	ry 1940	Janua	ry 1941	Janus	rs 1942
,	No. of Hos- pitals	No. of Vacan- cles	No. of Hos- pitals	No. of Vacan- cies	No. of Hos- pitals	No. of Vaenn- cles
Alabama	2	2	3	4	1	1
Arizona			2	4	1	4
Arkansas			1	2	1	15
California	7	8	8	37	6S	19 4
Colorado	3	4	4	4	2	23
Connecticut	2	2	5	8	13	
Delaware	1	1	3	4	**	ñ
Dist. of Columbia			2	2	2 2	5
Florida	1	2	1	4	z 5	19
Georgia	4	6	3	8		147
Illinois	26	60	30	79	4D 11	43
Indiana	ົວ	11	9	23	8	24
Iowa	7	16	G	13	3	6
Kansas	2	4	2	4		22
Kentucky	3	9	5	11	5	23
Louisiana	2	4	3	8	7	23 4
Maine	1	1	1	2	1	-
Maryland	4	в	4	12	11	41
Massachusetts	5	7	10	15	22	47
Michigan	11	23	12	30	17	63
Minnesota	4	8	5	14	7	32
	4	29	11	36	15	55
Missouri	1	1	1	1	1	1
Montana	4	5	5	13	5	11
Nebraska	-		ĭ	1	2	5
New Hampshire	10	19	5	11	20	62
New Jersey	15	26	31	68	48	132
New York	10	1	5	9	5	16
North Carolina	2	4	ĭ			
North Dakota		19	17	31	21	65
Ohio	9		1	1	4	10
Oklahoma	••	••	3	4	2	2
Oregon	• •	::	38	93	23	115
Pennsylvania	14	24	2	2	1	1
Rhode Island	2	4	í	4	2	11
South Carolina	1	3	3	8	3	8
Tennessec	1	1		16	7	19
Texas	4	7	7	6	3	5
Utah	2	2	3	2	2	4
Vermont	••		1	2	3	5
Virginia		••	2	7	7	8
Washington	3	5	5	3	ż	7
West Virginia	1	1	2	3	15	41
Wisconsin	12	19	G	ษ		
Totals	176	314	270	615	437	1,123

first schedule of Internship Essentials published in 1919 contained a requirement that necropsy facilities he available and that interns obtain experience in making postmortem examinations under the direction of the This matter received further hospital pathologist. emphasis in the revision of the Essentials in 1925 and, following a special study of hospital necropsy rates, the Council in 1927 decided that after Jan. 1, 1928 no hospital would be approved for intern training that did not obtain necropsies on at least 10 per cent of the patients dying in the institution, this requirement to be increased to 15 per cent after Jan. 1, 1929.

Table C .- Necropsy Performance in Approved Intern Hospitals

_	Number of Hospitals										
Percentage	1926	1930	1937	1939	1940	1941					
70 or over	14	19	27	29	41	42					
50-69	21	56	68	115	106	120					
30-49	68	164	263	319	334	290					
15-29	146	354	348	251	229	256					
Below 15		71	26	7	8	19					
Hospitals reporting	578	664	732	721	718	727					

The results were indeed gratifying, for within one year 586, or 93 per cent, of the approved intern hospitals obtained the required 10 per cent or more of necropsies. Thus only forty-five hospitals failed to meet the minimum requirement in 1928, whereas 222 were below 10 per cent in 1926. Subsequent performance is clearly illustrated in table C. In this the most striking feature is perhaps the rapid decline in the number of hospitals below 15 per cent, while the continuing increase in the higher percentage groups indicates that the hospitals are constantly making every effort to increase their teaching facilities beyond the minimum needs. As a matter of fact the average necropsy rate in the hospitals approved for intern training in 1937 was 34.4 per cent on the basis of 85,050 necropsies and 247,410 deaths. including stillbirths. When stillbirths and coroners' cases not available for teaching were excluded in 1938 the average rate was 37.6 per cent. This was later increased to 37.8 per cent in 1939 and 38.9 per cent in 1940. A slight gain was noted in 1941, when the hospitals approved for intern training reported 211,935 deaths and 82,587 necropsies, indicating an average ratio of 38.97 per cent (see table, page 1066).

In this connection it is of interest to note that the hospitals approved for internships, residencies and fellowships had a total of 250,090 deaths and 96,151 necropsies last year, an average of 38.4 per cent, whereas all other registered hospitals reported 260,068 deaths and 29,489 postmortem examinations, or 11.3 per cent.

DENTAL INTERNSHIPS

The Council on Medical Education and Hospitals does not attempt to exercise supervision over dental internships. However, it may be of interest to note that 152 of the 732 hospitals approved by the American Medical Association for intern and residency training are currently employing 275 dental interns. Further reference to individual hospitals offering dental internships will be included in the next revision of the approved intern list of the Council.

BLOOD AND PLASMA BANKS IN APPROVED HOSPITALS

In January 1942 a survey was made of the facilities for blood and plasma banks in the hospitals approved for internships, residencies and fellowships. Of the 1,070 approved hospitals 462, or 43.2 per cent, reported that such facilities were either in operation or in the process of being established. Some of these institutions also act as manufacturing and distributing centers to

supply blood, plasma or serum to other hospitals in the vicinity. The reports also indicated that many hospitals have commercial products on hand to meet emergency needs.

Reference to table D will show that 206 hospitals maintain both blood and plasma banks, with 17 others in the process of development. In addition there are 171 hospitals operating plasma banks and 33 separate institutions with blood banks. Furthermore it was reported that nine additional blood banks are being established as well as twenty-six plasma banks. Forty-eight other hospitals stated that facilities are available without specifying in what particular form.

RESIDENCIES AND FELLOWSHIPS

Of the 6,358 hospitals now registered by the American Medical Association, 632 have assumed an educational function in accordance with the standards set forth in the Essentials of Approved Residencies and Fellowships. Included in this group are 294 of the 732 institutions which are approved for intern training. From reports received in January 1942 it is apparent

TABLE D.—Blood and Plasma Banks—1942 (In Hospitals Approved for Intern and Residency Training)

		_==		_				
		~			77-	tablis	1	
	e o	딑			£S	tanns	ning	tro
	Number of Hospitals Approved	Blood Bank Only	,24				$\overline{}$	Total Facilities
	# E	格	8	20	Ä	'n	면병	≅
	0 5	Ē	Plasma Bank Only	Both Blood and Plasma	Blood Bank	Plasma Bank	Both Blood and Plasma	ac
	P 4	Р	4	四萬	Щ	₫.	產品	F4
	52	ğ	E .	드	ď	E	<u>_</u> _	a]
	5 €	ě	Plasr Only	55	ŏ	8	Both	ot
State	ŹΞ	m	ĒΘ	ë ë	茁	Ā	ă ë	Ĕ
Mohama	8		2					2
Alabama	3			•••	•	,,	::	•
Arkansas	Ť	•••		ï	•••		• • • • • • • • • • • • • • • • • • • •	ï
California	55	ï	3	7	ï	3	•••	15
Colorado	16	î	2					3
Connections	25	3	3	5	••	ï	ï	13
Connecticut	5		i	2				3
Delaware District of Columbia	19	ï	6	7	••			14
	7		1				••	1
Florida	11	••	2		'n	••	••	5
Georgia		ï	17	11	_	ï	••	30
Illinois	78		4	4	••	î	••	9
Indiana	20	••	1	1	ï		••	3
Iowa	13	••	2	1		• •	••	3
Kansas	8	•:	3	3	••	••	• •	7
Kentucky	12	1	4	1	• •	••	·i	6
Louisiana	14	••			ï	••		2
Maine	5	•:	• • •	1		• •	••	17
Maryland	24	1	8	8	•:	••	•:	21
Massachusetts	75	1	6	9	1	4	4	20
Michigan	47	1	4	11	••		••	
Minnesota	23	2	4	1	••	••	••	7
Mississippi	1	••	::	• :	••	•:	••	••
Missouri	39	• •	13	5	••	2	••	20
Montana	2	••	• • •	1	••	••	••	1
Nebraska	12	••	3	1	••	••	••	4
New Hampshire	ð	• • •	::	•:	•:	•:	••	::
New Jersey	52	4	13	5	1	1	•:	24
New York	158	7	19	46	••	3	4	79
North Carolina	11	••	2	5	••	••	••	7
North Dakota	3	•:	• :	-:-	•:	•:	• • •	::
Ohio	52	1	6	12	1	3	1	24
Oklahoma	7	•:	2	4	• •	••	•:	G
Oregon	7	1	1	1	•:	•:	1	4
Pennsylvania	103	3	18	26	1	3	2	53
Rhode Island	9 5	••	2	3	••	••	1	4 3
South Carolina	15	••	i	4	ï	·i	ï	8
Texas	31		i	4		î		8
Utah	5			••	••		• • • • • • • • • • • • • • • • • • • •	••
Vermont	2		::	ï		• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	ï
Virginia	19	ï	ï	3	••		ï	Ĝ
Washington	19		Ğ	3				ğ
West Virginia	12	1	4	2		2		ğ
Wisconsin	29		G	4				10
-								
Totals	1,070	33	171	206	9	26	17	462

that these hospitals are offering 5,656 internships exclusive of affiliate services, 2,664 approved residencies, 1,887 assistant residencies and 742 fellowships as well as 601 general and other services not yet certified by the Council. Actually, however, there were 5,236 interns on duty at the time of reporting and 5,756

residents, assistant residents and fellows. In this connection it may be of interest to note that in the 1,070 hospitals approved for internships, residencies or both there are now 7,219 interns employed, 2,036 assistant residents, 3,311 residents and 802 fellows.

The number and types of approved residencies are listed in table E. These are usually of one, two or three years duration but may in some instances extend over a period of five or six years. Detailed information concerning individual residencies is published annually in the Educational Number of The Journal, particularly with reference to the number of patients treated in each service, outpatient visits, deaths, necropsies, the number of residents, assistant residents and fellows employed and the initial monthly stipend.

The inspection and evaluation of residencies in specialties have been carried out by the Council since the publication of the first approved list in 1927. Prior to that time the special hospital assignments were included in the internship list which was officially established in 1914. The procedure involved in the investigation and appraisal of residencies and fellowships was outlined in The Journal, March 26, 1938, page 978. Subsequently a statement was included in the March 30, 1940 issue, pages 1172-1173, describing the program of collaboration entered into by the Council and the specialty boards in order to secure uniformity in the evaluation of educational opportunities and eliminate unnecessary effort in the inspection of individual hospital assignments. This cooperative plan not only is utilized in connection with the new applications for residency approval but is proving equally helpful in the reappraisal of services certified by the Council prior to the establishment of the American boards.

Table E—Classification of Approved Residencies and Fellowships—1942

	Residen	Asst. Residen-	Fellow	met-1	No of
Specialty	cies	cies	ships	Total	Hospitals
Anesthesiology	63	40	17	120	38
Cardiology				•	6
Communicable Diseases	29	7	_	36	18
Dermatology & Syphilology		22	16	70	33
Epilepsy	1		_	1	1
Fractures .	1	2	2	5	_4
Gynecology	25	19	1	45	22
Malignant Diseases	47	12	14	73	16
Medicine .	316	344	20S	868	204
Mixed	143	15	• .	158	63
Neurology	20	29	15	64	27
Neurosurgery .	22	11	12	45	22
Obstetries	69	61	~~	130	58
Obstetries and Gynecology	132	151	20	303	90
Ophthalmology	90	37	18	143	51
Ophthalmology-			-	110	40
Otolary ngology.	58	55	5	118 209	42 79
Orthopedic Surgery	150	57	32 15	160	61
Otolaryngology	100	45 79	59	323	170
Pathology	185	186	30	366	117
	150	150	30	3	3
	` 2	i	3	Ğ	4
T 1 4	312	71	31	414	12.5
Psychiatry.	106	66	35	207	126
Radiology	360	462	165	1,013	251
Surgery Thoracie Surgery	13	5	11	29	18
Traumatic Surgers	10				2 86
Tuberculosis	179	58	8	245	
Urology.	63	52	22	137	69
_	2,664	1,857	742	5,293	

^{*} Number of hospitals approved for Residencies and Fellowships, 63%.

In 1914 there were 428 special internships available in 95 hospitals. These remained practically at the same level during the succeeding ten years, as they totaled only 595 in 1924 although the number of hospitals had increased to 150. The formation of a separate residency list in 1927 gave needed impetus to the program of specialty training, which has recently culminated in the

establishment of certifying boards in fifteen of the divisions of medicine and surgery. Since that time the opportunities for residency training have actually tripled with the extension of hospital assignments from 1,776 to 5,293 and the number of approved institutions from 278 in 1927 to 632 at the present time.

TABLE F.—Interns and Residents in Approved Hospitals-1942

	======	~====		======	3 171
	Hospitals		Assistant	t	
	Approved	Interns		Residents	Fellow.
Alabama	8	38		28	
Arizona	š	9	•••	3	•
Arkansas	4	16	6	7	••
California	55	463	139	203	9
Colorado	16	60	5	40	6
Connecticut	25	159	23	51	5
Delaware .	5	25	1	1	Ü
District of Columbia	19	134	52	69	15
Tlorida	7	40	9	6	13
Georgia	11	76	52	33	
Illinois	78	467	77	327	<i>6</i> 5
Indiana	20	111	12	6 <u>1</u>	7
Iowa	13	41	34	27	•
Kansas	8	34	10	27 17	. 2
Kentucks	12	40	33	25	_
Louisiana	14	207	101	23 56	ï
Maine	5	21	101	G	1
Maryland	24	233	145	79	1
Mussnehusetts	75	372	90	194	63
Michigan	47	249	175	204	43
Minnesota	23	139	110	20± 37	312
Mississippi	1	100		31	D2~
Missouri	39	258	102	103	10
Montana	2	5			
Nebraska	12	45	••	23	ï
New Hampshire	ัร	10	ï	3	•
New Jersey	52	333	22	92	1
New York	158	1,706	477	785	100
North Carolina	11	79	44	25	1
North Dakota	3	2	71	3	:
Ohjo	52	350	169	202	61
Oklahoma	7	35	5	22	1
Oregon	7	53	9	18	1
Pennsylvania	103	676	29	273	43
Rhode Island	9	46	1	20	
South Carolina	ō	28	7	6	4
Tennessee	15	126	46	38	7
Texas	31	154	45	73	i
Utah	5	27		3	-
Vermont	2	4		3	2
Virginia	19	174	31	33	3
Washington	19	90	6	14	
West Virginia	12	31	12	18	
Wisconsin	29	113	65	67	1
Totals	1,070	7,219	2,036	3,311	\$02

The rate of growth has been fairly uniform throughout, although considerable acceleration has occurred in recent years in view of the continuing emphasis on specialization and the certifying activities of the American boards. In view of military needs it can be expected that residencies in specialties will be greatly curtailed during the coming year. Efforts are being made, however, by the Council on Medical Education and Hospitals and the Advisory Board for Medical Specialties to develop a plan whereby a certain percentage of recent graduates may be given an opportunity to continue their training beyond the period of a one year internship. To some extent the residency training program will also be maintained through the employment of physicians ineligible for military service who may wish to secure additional hospital experience in the specialties. While it is apparent that much of the residency work in civilian hospitals will necessarily be discontinued one does not hesitate to predict that American hospitals which are already well advanced in the field of graduate training will again be ready to resume their educational function when the present emergency is over.

ASSOCIATION REGISTERED DBY ATHER AMERICAN MEDICAL HOSPITALS

The following list contains the names of 6,358 hospitals, sanatoriums and related institutions that are located in the United States and 248 in Alaska, Canal Zone, Hawaii, Philippines, Puerto Rico and Virgin Islands. The list for each state is presented in two groups: (1) hospitals and sanatoriums, and (2) related institutions. The related institutions include infirmaries, nursing homes and other institutions designed to give certain medical and nursing care in an ethical and acceptable manner, without giving a full hospital service.

Registration of hospitals is governed by the Essentials of a Registered Hospital, adopted by the House of Delegates in 1928 and revised in 1939.

Registration is a basic recognition, extended to all the hospitals and related institutions in the following list, concerning which we have no evidence of irregular or unsafe practices. Approval is designation of certain registered institutions by the Council on Medical Education and Hospitals for internships, residencies and fellowships; or by the American College of Surgeons as unconditionally meeting its minimum standards.

KEY TO SYMBOLS AND ABBREVIATIONS

- * Approved for training interns by the Council on Medical Education and Hospitals. List with detailed information is sent
- + Approved for residencies or fellowships. List with detailed information is sent on request.
- ▲ Approved by American College of Surgeons as meeting unconditionally its minimum standards.

 School of nursing accredited by state board of nurse examiners.

 Affiliated for nurse training on state accredited basis.

 Figures for "average census" and "admissions" are exclusive of newborn infants.

The column headed "Type of Service" tells what diseases are treated in each institution:

	Cardiac Children Chronic Convalescent and rest Drug and alcoholic Enilentic	ENT Gen Incur Indus Inst	Eye, ear, nose and throat General Incurable Industrial Institutional	Iso Mat MatC MeDe Ment	Isolation Maternity h Maternity and children Mentally deficient Mental	N&A Orth SkCa TB Ven	Orthopedic Skin and cancer Tuberculosis
--	--------------------------------------------------------------------------------------------	--------------------------------------	----------------------------------------------------------------------------------	------------------------------------	------------------------------------------------------------------------------------	----------------------------------	-----------------------------------------------

The column headed "Control" indicates control, or auspices under which the institution is conducted:

	GOVERNMENTAL		NONPROFIT ORGANIZATIONS	1	PROPRIETARY
Fed IA Army Navy USPHS Vet	Federal Indian Affairs United States Army United States Navy I United States Public Health Service Veterans Administration Facility	State City County City-County CyCo	Church NPAssn Nonprofit Association	Indiv Part Corp	Individual Partnership Corporation (unrestricted as to profit)

The accompanying list omits additions to hospital facilities that may have been made by certain departments of the Federal Government since the publication of the last previous issue March 15, 1941.

Corrections were made in the list to the time of going to press. Totals of the list, therefore, may vary from totals in Tables 1 and 2 which were necessarily compiled earlier.

ALA	BAMA					1	ALABAMA-		ued				
Hospitals and Sanatoriums Hospitals and Sanatoriums Rely(ce	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †	Hospitals and Sanatoriums ALS	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †
Alabama City, 8,544—Etowah Etowah County Tuberculosis SanatoriumTB	County	22	20			48	Brewton, 3,323—Escambia Brewton Memorial Hospital Gen Clanton, 3,982—Chilton	Indiv	20		3 R	teorga	nized
Albertville, 3,651—Marshall Sand Mountain Infirmary Gen	Indiv	24	4	2	24	197		NPAssn	28	15	3	24	606
Alexander City, 6,640—Tallapoosa Russell Hospital Gen	Corp	54	12	4	89	417		СуСо	50	16	10	141	1,035
Altoona, 995—Etowah Klein Hospital Gen Anniston, 25,523—Calhoun	Indiv	27	12	3	44	409		NPAssn	50	28	4	102	736
Garner Hospital • Gen Susie Parker Stringfellow Me-	City	68	40	7	229	1,982	Dr. M. S. Davie's Private	Indiv	20	19	4	24	923
morial Hospital TB Athens, 4,342—Limestone	NPAssn	15	14	••	•••	35	Frasier-Ellis Hospital Gen	Indly Corp	60 66	52 37	Ĝ 9	108	1,725 1,260
Limestone County Hospital. Gen Atmore, 3,200Escambia	NPAssn	10	4	2	45	220	East Tallassee, 3,000—Tallapoosa	NPAssn	28	12	9	169	866
Atmore General Hospital Gen Auburn, 4,652—Lee	NPAssn	26	7	3	55	591	Enterprise, 4,353—Coffee	NPAssn	44	10	4	45	749
John Hodges Drake Hosp., Gen Bellamy, 317—Sumter	State	70	17			1,241	Eufaula, 6,269—Barbour	Indiv	50		6	43	651
Bellomy Hospital Gen Bessemer, 22,826—Jefferson	Indiv	16	5	2	21	231		Indiv	52	22 26	8		1,203
Bessemer General Hosp.A Gen	Corp	75	31			1,226	Employees' Hospital of the Tennessee Coal, Iron and						
Gen Chil N&M	Church NPAssn Indiv	190 50 50	154 31 29		• • •	6,960 1,383 479		NPAssn	291	207	26	1,213	8,782
Jefferson Hospital Gen	County County	432 545		46 75	1,935		McNease and Robertson	Part	20	9	4	35	333
Jefferson Tuberculosis Sana- toriumTB	County	150	103		•••	358	Flint (Decatur P.O.), 134—Morgan Morgan County Tuberculo-			-	-	-	0,0
Miss Quinn's Nursing Home Conv Norwood Hospital*+40 Gen	Part Church	10 226	8 118	٠.		310 7,038		County	50	41	••	•••	175
St. Vincent's Hospital+40 Gen South Highlands Infirmary 40 Gen	Church Corp	125 140	112 128	6 25	162	3,867 4,786		Indiv	30	28	2	42	221
365 Crippled Children's Clinic Orth	NPAssn	50	36	••	• • •	359		City	40	22	6	203	1,550

Key to symbols and abbreviations is on this page, preceding the tabulation

ALABAMA-Continued	£
-------------------	---

ALABAMA	Continue	3			ARIZONA		20, 1942
			•		\		
Hospitals and Sanatoriums Fort McClellan, —Calhoun	Ownership or Control	Average Census †	Bassinets Number of	Births Admis- sions †	Hospitals and Sanatoriums On Control Aio 1100—Pima	Average Census † Bassinets	Number of Births Admis- slous †
Station Hospital Gen Gadsden, 36,975—Etowah	Army 200			2 5,449	Phelps Dodge Hospital Gen Corp 33	13 5	130 825
Forrest General Hospitalo, Gen	Indiv 85	14	10 6	30 813	Copper Queen Hospital Gen NPAgen 49	31 8	
Holy Name of Jesus Hos- pital Common Gen	Church 96	66	18 43	32 5,412	Chinle, 65—Apache	-	261 1,549
Greensboro Hospital Gen	Part 16			19 112	Coopies County Theorit	17 3	40 738
Greenville, 5,075—Butler Speir Hospital Gen	Indiy 46			7 480	Flagstaff, 5,080—Coconino	. 84 6	72 869
Guntersville, 4,398—Marshall	Part 40			S 781	Mercy Hospital Gen Indiv 14	8 , 6 5 5	75 510 43 274
Guntersville City Hospital Gen Huntsville, 13,050—Madison	City 29		5 Esta	b. 1941	Fort Defiance, 600—Apache Fort Defiance Sanatorium Unit of Navajo Medica	ıl Center	Hospital
Huntsville Hospital Gen Jackson, 2,039—Clarke	NPAssn 70	32	6 14	4 1,562	Navajo Medical Center Hos-		-
South Alabama Infirmary Gen Jasper, 6,847—Walker	Corp 16	в	2 2	7 291	pital and Sanatorium A Gen IA 173 TB IA 100	98 14 98	116 2,071 163
Peoples Hospitalo Gen Walker County Hospital Gen	County 70	30	§ 13		Fort Huachuen, 1,500—Cochise Station Hospital	31 1	12 802
Lafayette, 2,138—Chambers	Corp 55	25	5 4	S 1,068	Ganado, 150-Apache Sage Memorial Hospital*. Gen Church 150 Globe, 0,141-Gila	92 15	133 1,605
Batson Memorial Sana- toriumTB	County 52	48		. 131	Gila County Hospital Gen County 50	30 6	82 620
Mobile, 78,720—Mobile Allen Memorial Home Mat	Church 24	11			Holbrook, 1,184—Navajo Park-Navajo Private Hos-		
City Hospital** Gen Mobile County Tuberculosis	CyCo 127	104	18 57	4 3,868	pital Gen Indiv 9	4 3	46 141
Sanitarium TB Mobile Infirmary* Gen Providence Hospital* Gen	NPAssn 60 NPAssn 120	37 87	io 26	50 3 3,177	Keams Canyon, 150-Nayajo	35 4	114 1,146
U. S. Marine Hospital Gen	Church 88 USPHS 191		20 40		Hopi General Hospital Gen IA 49	31 7	51 959
Montgomery, 78,084—Montgomery Fitts Hill Hospital Gen	Indiv 30	20		9 1,099	Kingman, 2,200—Mohave Mohave General Hospital Gen County 30 Leupp, 200—Coconino	21 5	110 709
Fraternal Hospital Gen Hubbard Hospital Gen	Indly 55 Indiv 55	23	10 10	0 1,875 1 2,021	Leupp Indian Hospital Gen IA 28	20 3	23 560
Kilby Prison Hospital Inst Montgomery Tuberculosis	State 125				McNary Hospital Gen NPAssn 12 Mesa, 7,224—Maricopa South Sida District Hosp	2 1	22 115
Sanatorium	NPAssn 115 Church 123	106 . 96 2	21 658	. 218 3 4,755	South Side District Hosp Gen NPAssn 50 Miami, 4,722—Gila	50 8	282 2,011
Station Hospital Gen Veterans Admin. Facility. Gen	Army 50 Vet 268	50	4 2	5 1,911	Miami-Inspiration Hospital Gen NPAssn 40 Morenel, 1,500—Greenlee	22 7	163 771
Mt. Vernlon, 810-Mobile Searcy Hospital Ment	State 1,650				Phelps-Dodge Hospital Gen NPAssn 36 Nogales, 5,135—Santa Cruz St. Joseph's Hospital Gen Church 30	30 8	350 1,353
Opelika, 8,487—Lee Opelika Infirmary Gen	Indiv 25	11			St. Joseph's Hospital Gen Church 30 Oracle, 200—Pinal	10 7	46 300
Pell City, 900—St. Clair Pell City Infirmary Gen	Indiv 19		1 60		La Casa del Encanto N&M Indiv 8 Parker, 200—Yuma Colorado Piros India	4	16
Prattville, 2,661—Autauga	Indiv 20		4 6			14 4	31 369
Prattville General Hospital Gen Repton, 365—Conecuh		-	_		Phoenix, 65,414—Maricopa	925	511
Carter Hospital	Indiv 16				Good Samaritan Hosp.** Gen Church 178	118 18	551 4,629 100 1,158
Russellville, 3,510—Franklin	Indiv 32				Phoenix Indian Sanatorium TB IA 130	89 157 40 1,	110
Russellville Hospital Gen Scottsboro, 2,834—Jackson	Indiv 30		3 54	•	St. Luke's Home		93
Hodges Hospital Gen Tri-Countles Tuberculosis	Indiv 20		2 27		Pamsetgaaf Sanatorium TB Indiv 35 Yayapai County Hospital, InstGen County 68	10 45 6	103 937
Sanatorium TB Selma, 19,834—Dallas	Countles 20	18 . 15	2 8		Ray, 1,100-Pinal		63 389
Burwell Infirmary Gen Goldsby King Memorial	Part 25				Sacaton, 315-Pinal		89 948
Hospital	NPAssn 72 f Selma Baptist	47 1 Hospitai	i	1,429	Safford, 2,266-Graham	10 5	58 448
Selma Baptist Hospital Gen Vaughan Memorial Hosp. Gen	NPAssn 50 Corp 35	27 23		1,275	San Carlos, 100-Gila	27 G	72 942
Sheffield, 7,933—Colbert Colbert County Hospital Gen	CyCo 75	28 1	2 248	2,079	l Sells, 400—Pima	35 5	28 507
Sylacauga, 6,269—Talladega Drummond Fraser Hospital	a	40. 1	. 910	1 001	Tempe, 2,906-Maricopa	91	129
and Sylacauga Infirmary Ao Gen	Corp 71	46 1		1,831 4,284		32 б	30 1,002
Gen Inst	NPAssn 100 NPAssn 18	55 1.	9 319	136	Tucson, 36,818—Pima Anson Rest Home TB Part 30 2	^	47 42
Troy, 7,055—Pike Beard Memorial Hospital Gen	Indiv 35 Indiv 35		6 70 3 42		Barfield Sanatorium TB Indiv 22 Comstock Children's Hosp TB NPAssn 35		\$6
Edge Hospital		4,187		4.05		13 5 1	19 452
Ment Gen	State 4,220 NPAssn 78 Church 55	52 11 23	540	3,285	milain	06 10 1 15	15 1,307 89
Stillman Hospital Gen Veterans Admin. Facility. Ment	Church 55 Yet 558	230			St. Luke's in-the-Desert	90	25
Yeterans Admin. Facility. Ment	Vet 1,498	1,450		2,232	St. Mary's Hospital and	0 25 59	0 4,460
John Albion Andrew Me-	NPAssn 125	53 8	9 151	1,052	TB Church 35 2	3	. 126
morial Hospitalo Gen Wetumpka, 3,089—Elmore			1 96	631	San Xavier Indian Sana- torium	0	
Wetumpka General Hosp Gen York, 1,783—Sumter		6 2		434	Southern Pacific Sana- torium TB NPASS 62 41 torium TB Vet 250 186 Veterans Admin, Facility TB Vet 200 186	б	015
Hill Hospithi Gen	Indiv 20				Veterans Admit, Little Gen Vet 99 118	s	1.012
Related Institutions Birmingham, 267,583—Jefferson				1	Veterans Admin. Facility. Gen Vet 312 152 TB Vet 82 53		176
Alabama Boys' Industrial SchoolInst	State 29	4		6 96	Whiteriver, S00—Navajo	, , ,,,	726
Salvation Army Home and Mat	Church 10	6 25	\$1	97	All III ,,,, Gen IA	- 47	
Montevallo, 1,490—Shelby	State 36	5		1,643	Gen NPAssa 21 10	-	
Tuscaloosa, 27,403—Tuscaloosa Partlow State School MeDe	State S43	sas		80	, Gen mary		
************************************	Ke	y to sym	bols an	d abbre	viations is on page 1071		

MOWBER 12								
ARIZONA	Continu	eđ				ı	ARKANSAS—Continued	
	d lo			<u>.</u>	oţ		Happe of Service Control or Control Beds Average Control Bassinets Number of Births Admis-	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	rnership Control		Average Census †	Bassinets	Number Births	÷ ÷	Type of Service Service Control or Control o	18
Jo ed Application of Applications of Applications	- <u> </u>	Beds	Yens	3889		Admie sions	Hospitals and Sanatoriums Administratory Course BB Course Course BB Course Course Course Course BB Course C	200
Winslow, 4,577—Navajo	. 00	щ		•	4		Little Rock, 88,039—Pulaski	_
Winslow Indian Sanatorium TB Yuma, 5,325—Yuma	IA	55	51	••	•••	97	Arkansas Children's Home and Hospital Chil NPAssn 83 53 1,43	
Fort Yuma Indian Hospital Gen	IA	29	13	8	18	433	Baptist State Hospital*+40 Gen Church 340 157 25 494 5,35 Florence Crittenton Home, Mat NPAssn 33 2 12 19 3	54 32
Yuma County General Hospital Gen	County	72	51	12	278	1,738	Granite Mountain Hospital Gen Indiv 20 4 2 24 18	
Related Institutions							Pulaski County Hospital. Gen County 177 180 4 151 1,04	45
Kayenta, 40Navajo							St. Vincent's Infirmary*AO Gen Church 183 153 50 926 6,15	
Kayenta Indian Sana- toriumTB	1A	54	42		•••	91	State Hospital Ment State 4,280 4,532 1,51 United Friends of America	18
Phoenix, 65,414—Maricopa Eva Harris Maternity							Hospital	19
Home Mat	Indiv	15	8	15	375	375	Magnolia, 4,326—Columbia	
Tucson, 36,818—Pima Arizona State Elks Asso-							Oity Hospital Gen City 21 9 4 75 45 Monticello, 3,650—Drew	ю
ciation Hospital TB Reardon Sanatorium TB	NPAssn Indiv	$\frac{25}{12}$			•••	20 19	Mack Wilson Hospital Gen Indiv 30 12 2 29 60 Morrilton, 4,608—Conway	10
Valentine, 110—Mohave Truxton Canyon Hospital. Gen	IA	15	9	5	23	189	St. Anthony's Hospital A Gen Church 30 24 4 89 74	13
Truxton Canyon Hospitan. Cen				•			Newport, 4,321—Jackson Dr. Gray's Hospital Gen Indiv 20 8 2 28 31	17
ARK	ANSAS						Paragould, 7,079—Greene Dickson Memorial Sani-	
					~		tarium	15
ř	shir atro		9. 18. 18. 18. 18.	ıets	er of	*-	Davis Hospital Gen Church 60 30 8 312 1,55	59
10 ed. Hospitals and Sanatoriums African	service Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admis- sions †	Prescott, 3,177—Nevada Cora Donnell Hospital Gen Indiv 30 11 5 46 59)2
H	0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Be	A C	BB	N E	Ads	Russellville, 5,927—Pope Haney Eye, Ear, Nose and	
Alexander, 134—Pulaski McRae Memorial Sana-							Throat Hospital ENT Indiv 8 2 20	
torium TB Arkadelphia, 5,078—Clark	State	147	102	••	•••	112	Searcy, 3,670-White	
Townsend Hospital Gen	Indiv	14	4	4	31	198	Hawkins Clinic Hospital Gen Indiv 26 17 4 60 41 Wakenight Hospital Gen Indiv 50 28 5 78 1,43	
Batesville, 5,267—Independence Craig Hospital Gen	Indiv	12	8	3	19	608	Siloam Springs, 2,764—Benton John Brown University	
Dr. Gray's Hospital Gen	Indiv	55	15	6	30	625	Hospital Gen NPAssn 25 9 4 47 62	24
Benton, 3,502—Saline Blakely Hospital Gen	Indiv	15	N	o da	ta su	pplied	State Sanatorium, 300—Logan Arkansas Tuberculosis	
State Hospital, Benton Division	of State Ho	spite	ıl, Lit	tle I	Rock		Sanatorium TB State 1,155 1,158 1,40 Texarkana, 11,821—Miller)5
Blytheville, 10,652—Mississippi Blytheville City Hospital Gen	Indiv	40	15	6	50	902	Michael Meagher Memorial Hospital	דמ
Walls Hospital Gen	Indiv	34	20	ő		1,060	St. Louis Southwestern	
Camden, 8,975—Ouachita Camden Hospital Gen	NPAssn	40	18	9	276	1,046	Hospital Indus NPAssn 150 78 3,17 Veterans Administration Facility,—Pulaski	
Charleston, 958—Franklin Bollinger Hospital Gen	Indiv	12	3		53	129	Veterans Admin. Facility. Ment Vet 1,360 1,170 53	13
Clarksville, 3,118—Johnson	III.		•	••	00	120	Warren, 2,516—Bradley Hunt Hospital)5
St. Hildegard's Municipal HospitalGen	Church	26	14	5	43	896	Related Institutions	
Conway, 5,782—Faulkner Conway Memorial Hosp Gen	NPAssn	30	9	4	72	562	Little Rock, 88,039—Pulaski Arkansas School for the	
Crossett, 4,891—Ashley							Blind Inst State 22 4 16	34
Crossett Hospital Gen De Queen, 3,055—Sevier	NPAssn	46	17	10	125	1,150	CALIDODALA	
Archer Hospital Gen De Queen General Hospital. Gen	Indiv Part	22 18	5 8	1 2	17 24	231 504	CALIFORNIA	
Dermott, 3,083—Chicot Dermott Municipal Hospital Gen		30	9	3		309	Hospitals and Sanatorium swinceship r Control of Control in the service control in the control i	
Dumas, 2,323—Desha	Church		9		32		Hospitals and Sanatorium swinership it Control for Control furnher of inthe	-
Dumas Hospital Gen El Dorado, 15,858—Union	Corp	22	5	4	83	323	Hospitals and Sanatoriums Owner Constant Decks Constant Deck	25
Henry C. Rosamond Me- morial Hospital Gen	Part	24	6		Fo	278	Agnew, 300—Santa Clara	
Warner Brown Hospital Gen	Church	79	54	8 10	58 387	2,478	Ahwahnee, 50-Madera	
Fayetteville, 8,212—Washington Fayetteville City Hospital▲ Gen Veterans Admin. Facility▲. Gen	City	60	33	10	248	1,487	Ahwahnee Sanatorium TB Counties 128 96 14: Alameda, 36,256—Alameda	2
Veterans Admin. Facility▲. Gen Fort Smith, 36,584—Sebastian	Vet	258	229	••		2,245	I Alameda Hospital Gen NPAssn 85 54 21 369 2 55	0
Arkansas Tuberculosis Sana-	n.f. A=3	m. ·		., -			Albany, 11,493—Alumeda Albany Hospital Gen Indiv 30 23 16 446 1,238 Alcatraz, —San Francisco	9
	ot Arkansas te Sanatoriur		erculo:	sis S	anato	rium,	U. S. Pententiary Hospital Inst USPHS 30	
St. Edward's Mercy Hospital Gen	Church	100	102	16	579	3,857	Alhambra, 38,935—Los Angeles Alhambra Hospital ⁴ Gen Corp 40 38 12 442 2,117 Angel Island, 478—Marin	7
Sparks' Memorial Hosp.♣♦. Gen Haskell, 171—Saline	NPAssn	100		15	283	2,784		
State Hospital, Benton Di-							Antioch, 5,106—Contra Costa	
vision	or state Ho	espit	aı, Lit	tie	Rock		Antioch Hospital Gen Indiv 20 8 8 223 85	
Estelle Hospital Gen Helena, 8,546—Phillips	Part	22	14	5	140	701	Gen Church 23 15 5 69 660	0
Helena Hospital Gen	NPAssn	60	31	8	138	1,337	See Riverside	
Hope, 7,475—Hempstead Josephine Hospital Gen	Indiv	22	9	4	39		Atwater, 1,235-Merced Gen Indiv 25 14 7 103 708	S
Julia Chester Hospital Gen Hot Springs National Park, 21,370-	NPAssn Garland	35	16	6	46	473	Bloss Memorial Hospital Unit of Merced General Hospital, Merced	
Army and Navy General Hospital		412	269	3	10	3,098	Auberry, 100—Fresno Wish-I-ah Sanatorium TB County 100 &6 183	2
Leo N. Levi Memorial Hos-	-						Auburn, 4,013—Placer Highlands General Hospital	
pital+40 Gen Ozark Sanatorium Gen	NPAssn Corp	75 60	53 13		82 28		and Sanitarium Gen Indiv 26 10 5 134 511	
St. Joseph's Infirmary Gen U. S. Public Health Service	Church	150	81		28 117	2,475	Bakersfield, 29,252—Kern Verey Hospital Gen Church 112 50 00 100 000	
Medical Center Infirmary, Ver Jonesboro, 11,729—Craighead	USPHS	90	52	4	18	203	Danning, 3,814Riverside	1
St. Bernard's Hospital Gen	Church	100	75	10	238	2,566	Banning Hospital and Sana- torium	8
Lake Village, 2,045—Chicot Lake Village Infirmary Gen	Part	37	15	5	65	894	Southern Sierras Sanntorium	
								-

CALIFORNIA-Continued

CALIFO	RNI.	A-Cor	ıtinue	đ				
		d jo			m	70		
	of See of	rsh		ige is †	Bassinets	er (<u>.</u>	
Hospitals and Sanatoriums	Type Servic	rne. Co	gp	Average Census	ıssiı	Number	lmi sa	
Bell, 11,264—Los Angeles		69	Bed	A S	Ba	Ñ	Ad Blog	į
Bell Mission Hospital	Gen	Corp	30	26	13	540	1,298	1
Belmont, 1,229—San Mateo Alexander Sanitarium	N&M	Corp	75	53			,	Ì
California Sanatorium Twin Pines Sanitarium	7)713	Corp	100	86	::		281	Į
Berkeley, 85.547—Alameda		Corp	38	34	••			ļ
Alta Rates Hospitals	Gen Gen	Corp NPAssn	100 100	79 40	36 13	633 268		Ì
Berkeley Hospital	Con						•	- {
Hospital▲ Blythe, 2,355—Riverside	oen	State	100	76	1	2	3,223	1
Riverside County Branch Hospital	Gen	County	17	6	11	93	901	Ì
Brawley, 11,718-Imperial		•		-	11	ขอ	364	ł
Brauley Community Hosp. Burbank, 34,337—Los Angeles		Indiv	20	9	14	215	617	1
Burbank Hospital Camarillo, 300—Ventura	Gen	Indiv	36	25	12	249	907	1
Camarillo State Hospital	Ment	State	3,058	2,665			1,401	1
Carmel, 2,837—Monterey Peninsula Community								}
Hospital Chico, 9,287—Butte	Gen	NPAssn	37	26	10	326	1,320	{
Enloe Hospital	Gen	Indiv	42	30	14	250	1,293	1
Colfax, 791—Placer Bushnell Sanatorium		Colfac	ichool 1	for the			•	1
Contax Hospital	Unit of	Colfax	School	for the	e Tr	bercu	lous	1
Colfax School for the Tuberculous	TB	Indiv	54	18			45	}
Compton, 16,198—Los Angeles Compton Sanitarium+AO		Corp	120	63	_		573	1
Las Campanas Hospital	Gen	Corp	33	26	12	333	1,162	1
Concord, 1,373—Contra Costa Concord Hospital	Gen	Indiv	40	15	8	187	865	1
Coronado, 6,932—San Diego Coronado Hospital		Indiv	14	7	5	70	266	1
Covina, 3,049—Los Angeles								1
Covina Hospital Crescent City, 1,363—Del Norte		Part	50	29	10	151	1,123	-
Knapp Hospital	Gen	NPAssn	25	8	5	73	478	1
Community Hospital Delano, 4,573—Kern	Gen	Indiv	11	9	6	195	550	1
Delano, 4,573—Kern Delano Hospital	Gen	Indiv	17	8	7	66	413	
Dinuba, 3,790—Tulare Alta District Hospital	_	Part	17	6	4	120	320	1
Dos Palos, 978—Merced	J. 11	- 410	^1	v	*	0	0-0	1
Dos Palos Community Hospital	Gen	Indiv	16	8	3	135	636	}
Downey, 15,000—Los Angeles Downey Community Hosp.	_	NPAssn	30	15	8	149	953	{
Duarte, 2,000—Los Angeles					-			1
Los Angeles Sanatorium [‡] Dunsmuir, 2,359—Siskiyou	TD	NPAssn	200	174	••	•••	122	1
Dunsmuir Hospital and Sanitarium	Gen	Part	17	4	6	53	332	1
El Centro, 10,017—Imperial	J-14			•	•			
Imperial County Charity Hospital	Gen	County	97	77	4	111	1,261	l
Eldridge, 16—Sonoma Sonoma State Home El Monte, 4,746—Los Angeles	MeDe	State	3,045	3,017			400	
El Monte, 4,746—Los Angeles	Ton 37 at		135	50	15	6	76	
Eureka, 17,055—Humboldt	. cu mar							1
General Hospital Humboldt County Hospital	Gen Gen	Part County	42 106	24 70	8 6	144 85	2,048 1,880	1
Humboldt County School 101	ŗ.		65	48			96	
the Tuberculous St. Joseph Hospital	Gen	County Church	65	33	i3	212	1,594	
Trainfield 1 219 Colono		County	110	94	6	96	1,034	-
Solano County Hospital 1 Fort Bragg, 3,235—Mendocino Redwood Coast Hospital French Camp, 248—San Joaqui	Com	Corn		15	8	96	576	
Redwood Coast Hospital. French Camp, 248—San Joaqui	oen in	Coth	27	10	J	20	٠.٠	
San Joaquin General Hospital		County	525	523	25	891	10,973	ļ
	TB	County	88	78	••	•••	140	
Fresno, 60,685—Fresno Burnett Sanitarium	Gen	Corp	134	95	32	908	4,284	
General Hospital of Fresno County*+40		County	405	390	30	1,117	7,855	
	7.72	County Church	105 72	100 50	iś	416	326 2,087	
St. Agnes Hospital Fullerton, 10,442—Orange				20	10	228	951	i
Fullerton Hospital	Gen	Church	35					
Wheeler Hospital	Gen	NPAssn	25	13	8	119	617	
Glendale, 82,582—Los Angeles Glendale Sanitarium and	Gar	Church	200	170	25	814	5,323	
Hospital*AO Physicians and Surgeons Hospital*				67	18	879	3,445	
Hospital	Gen	NPAssn	70	01	-0	5.5	-,	
Physicians and Surgeons Hospital Grass Valley, 5,701—Nevada W. O. Jones Memorial	Gen	Indiv	30	16	4	49	533	
•	Gen	Army	66	25			1,005	
		_	26	21	8	169	997	
	Gen Gen	Corp County	165	137	12 7	236 300	2,446	
	Gen	Church	24	16 v to s			d abbr	ev

CALIFOR	NIAC	ontinue	đ	
	e of lee reship		5.4 - 4.6 - 4.6	i of
Hospitals and Sanatoriums	Type of Service Ownership or Control	Beds	Average Census † Bassinets	Number Births Admis- sions t
Hawthorne, 8,263—Los Angeles Hawthorne Hospital Ger Hayward, 6,736—Alameda	n Part	26	15 15	
Hayward Hospital Ger		20	12 5	190 583
Healdsburg General Hosp., Ger Hermosa Beach, 7,197—Los Angele	n NPAs s	sn 20	7 6	80 1,100
South Bay Community Hospital Hollister, 3,831—San Benito Hazel Hawkins Memorial		sn 20	8 7	45 261
Hospital	n NPAs Gen Count	sn 18 ty 40	11 4 38 4	
Rancho Los Amigos Inst. Hoopa, 140—Humboldt	lent Count	y 2,891	2,795	2,003
Hoopa Valley Indian Hosp. Ger	ı IA	44	12 5	51 402
Huntington Park, 28,648—Los Ang Mission Hospital Ger	cies Corp	31	31 10	437 1,473
Imola, 20—Napa Napa State Hospital Mer	nt State	3,848	3,499	819
Indio, 2,296—Riverside Casita Hospital Gen Coachella Valley Hospital. Gen Inglewood, 30,114—Los Angeles	Indiv Part	26 20	13 7 14 6	160 834 115 780
Centinela Hospital Gen Inglewood Woman's Hosp. Mat	. Indir Part	42 30	39 10 16 27	354 1,457 450 445
St. Erne Sanitarium N& Keene, 164—Kern	M Indiv	200	195	266
Stony Brook Retreat TB King City, 1,768—Monterey	Count		98	80
Community Hospital Gen Kingsburg, 1,501—Fresno		15	9 4	48 472
Kingsburg Sanitarium Gen La Crescenta, 3,000—Los Angeles Hillcrest Sanitarium TB		12	6 4 89	33 380 134
La Jolla, —San Diego Scripps Memorial Hospital Gen	Corp NPAss	125 n 44	89 32 6	102 1,217
Scripps Metabolic Clinic Meta La Vina, 35—Los Angeles	ab NPAss		26	1,444
La Vina Sanatorium TB Lindsay, 4,397—Tulare	NPAss	n 50	49	40
Lindsay Municipal Hospital Gen Livermore, 2,885—Alameda Arroyo-Del Valle Sana-	City	25	5	Estab. 1941
torium+▲⊙ TB	County of Corp	7 272 146	250 97	232 403
Livermore Sanitarium N&1 St. Paul's Hospital Gen Veterans Admin. Facility. TB	Indiv Vet	23 339	12 6 307	110 401 403
Lodi, 11,079—San Joaquin Buchanan Hospital Gen Mason Hospital Gen Loma Linda, 2,500—San Bernardino	Indiv Indiv	35 25	18 9 15 5	166 931 Dj 574
Loma Linda Sanitarium	Church	122	8S 12	238 3,233
Long Beach, 164,271—Los Angeles Bixby Knolls Maternity Hospital	Part	24	15 24	500 528
Harriman Jones Clinic and Hospital ♣	Indiv	40	17 8	131 866
Long Beach Community	NPAsen	100	75 20	543 3,715
Hospital ¹	Church	75	75 18 122 40	874 3,182 593 6,577
Seaside Memorial Hosp. Gen Los Angeles, 1,504,277—Los Angeles	NPAssn NPAssn	214	98	72
Mnt	NPAssn	28	22 30	780 801 517
California Hospital*40 Gen Cedars of Lebanon Hos-	NPAssn Church			,570 0,781
Children's HospitaltAO Chil	NPAssn NPAssn	200 1	44	,145 8,831 4,971 567 747
Ex-Patients Home of the	NPAssn	25	14 11	
AssociationTB	NPAssn Corp	21	67 2	1,825 425 1,010
Association TB Eye and Ear Hospital ENT French Hospital Gen Golden State Hospital Gen Hospital of the Good	NPAssn Indiv			425 1,910 791
Hospital of the door	Church		19 44 1, 11	032 10,511 5,011
Juvenile Hall Hospital Inst	County NPAssn	28	11 12	315 967
(Medical Unit)*+40 Gen	County	3,794 2,23		007 49,576
Los Angeles County Jall Hospital	County			2,317
pathic Hospitai Gen	f Los Ang Indir	eles Count 27 1	o	122
Methodist Hospital of South	Church	190 15 100 5	0 40 1,7	30 4,713
Mount Sinni Hospital Gen OrChil	NPAssn NPAssn Indiv	75 G	1.	io 2,011 19 213
Gen	NPAssn	260 20	1 65 1,4	10 8.563 20 10.515
Queen of Angels Hosp.** Gen	Church Church	325 29 250 22		D Plan
Santa Fe Coast Lines Hos- pital** Indus	NPAsen	190 153	i ··	4,000

Respirals and Sanaterium Section	CALIFO	RNI	ACont	inue	d			I	CALIFORNIA—Continued
Southers Gereal Hospital Gen Indiv. 42 17 12 500 800 17 18 18 18 18 18 18 18 18 18 18 18 18 18	Useritate and Sanatariums	pe of vice	nership Control	ž.	erage isus t	ssinets	mbe r of ths	mis- ns †	sample of the control
Solition Column	Thehitate and Squatoriums	Ser	30 0	Be	Av	BB		1	Pleaserille 2051—Fidorado
Hospital Gen	White Memorial Hosp.*+** (Los Banos, 2,214—Merced	Gen Gen				12 37	546 1,200		El Dorado County Hosp InstGen County 65 45 4 27 128 Placerville Sanatorium Gen Part 30 15 8 97 594 Pomona, 23,539—Los Angeles
Section Sect	Hospital	Gen	Church	12	7	4	67	321	Hospital
Marting Sanitarium Till County 25 17 5 18 60	Dearborn Hospital	Gen			15				Porterville, 6,270—Tulare
Manuer M	•	TB	County	26	17			37	Portola, 2,000—Plumas Western Pacific Railway
March Field Minter Min	Manor, Marin							1	Hospital Gen NPAssn 25 16 4 75 606
Mary S. Award Mary Section	March Field, -Riverside							1	Plumas County Hospital Gen County 39 25 4 39 97
Country Coun	Mare Island, 500-Solano							- 1	Rand District HospitalGen Indiv 8 6 2 38 402
Martiese Community Hosp, Gen Dolly 30 20 60 11 12 12 13 14 15 15 15 15 15 15 15	Martinez, 7,381—Contra Costa Contra Costa County Hos-								Tehama County Hospital. Gen County 56 44 6 77 642
Eldoud Memorial Hospital Cent Grant State	Martinez Community Hosp.	Gen Gen						2,679 1,141	Shasta County Hospital InstGen County 100 80 8 97 2,202
McCloudt 2009-Slakiyou McClou	Rideout Memorial Hospital	Gen	Indiv						Redlands Community Hosp, Gen NPAssn 56 29 18 181 1,303
Medical Hospital Gen NPAss 25 12 6 8 85 85 85 85 85 85		nstGen	County	90	87	6	155	932	Canyon Sanatorium TB County 66 46 71
Merced General Hospital. Gen	McCloud Hospital	Gen	NPAssn	25	12	6	89	558	Reedley, 3,170—Fresno
Merceta Hospital Gen Indiv 50 55 50 1.667	Merced General Hospital	Gen TB				18	480		
Richertson Hospital Gen Gord William Society		Gen		50	35	12	296	1,967	Folsom Prison Hospital Inst State 84 76 1,264 Richmond, 23,642—Contra Costa
St. Mary's Hospital	McPheeters Hospital				26		147 329	1,294 1,344	Richmond Hospital Gen Part 52 43 11 387 2,351 Riverside, 34.696—Riverside
Monrovia, 12,857	St. Mary's Hospital	Gen			22	8	243	1,000	Riverside Community Hos-
Potterner Sanatorium and Collaids	Monrovia, 12,807-Los Angeles		Indiv	20	14				Riverside County Hospital Gen County 222 163 23 382 3,627
Montercy 10,654 Montercy 10,6554 Montercy 10,	Pottenger Sanatorium and		_				•••		Sherman Institute Hospital Inst IA 58 9 496
Station Hospital Gen Army 300 200 2 11 4,690	Monterey, 10,084-Monterey		_	34			41	515	Rosemead, 5,500—Los Angeles Albambra Sanatorium N&M Indiv 22 12 65
Second Color	Station Hospital	Gen							Ross, 1,751—Marin
Record Harte Stantorium+ TB	Garfield Hospitals		Corp	37	31	16	580	1,465	TB Corp 40 29 119 Sacramento, 105,958—Sacramento
Victory Hospital Gen	Bret Harte Sanatorium+	TB	Counties	159	136	••	•••	203	Mercy Hospital Gen Church 169 125 31 720 5,760 Sacramento County Hos-
Elwyn Hospital Gen	Victory Hospital		Corp	26	22	8	258	1,072	TB - County 45 45 177
and Hospital+6 —— Gen Church 127 70 20 503 2,461 Merad City, 2445—Nevada Gen NpAsan 20 17 4 40 515 Miners Hospital Gen County 160 130 10 203 2,265 Miners Hospital City 10 4 8 130 240 More Hospital City 10 5 8 4 10 243 Nevada County Hospital Gen County 10 70 70 85 Nevada County Hospital Gen County 10 70 70 85 Nevada County Hospital Gen County 10 70 70 85 Nevada County Hospital Gen County 10 70 70 85 Nevada County Hospital Gen County 10 70 70 85 Nevada County Hospital Gen County 10 70 70 85 Nevada County Hospital Gen Lodge Gen County 10 70 70 85 Nevada County Hospital Gen Lodge Gen County 10 70 70 85 Nevada Gen County 10 70 70 85 Nevada County Hospital Gen County 10 70 70 85 Nevada Children's Hospital Gen County 10 70 70 85 Newada Children's Hospital Gen County 10 70 70 85 Newada Children's Hospital Gen County 10 70 70 85 Newada Children's Hospital Gen County 10 70 70 85 Newada Children's Hospital Gen County 10 70 70 85 Newada Children's Hospital Gen County 10 70 70 85 Newada Children's Hospital Gen County 10 70 70 85 Newada Children's Hospital County 10 70 70 70	Elwyn Hospital	Gen	Part	10	5	3	43	286	Sutter Maternity Hospital, Mat NPAssn 78 47 70 1,514 1,816
Miners Hospital Gen Gen NPAssn 20 17 4 40 52 Nevada (County Hospital) Gen Gounty 96 50 4 27 425 Nevada (County Hospital) Gen Gounty 96 50 4 27 425 Nevada (County Hospital) Gen Gounty 96 50 4 27 425 Nevada (County Hospital) Gen Gounty 96 50 4 27 425 Nevada (County Hospital) Gen Gounty 96 50 4 27 425 Nevada (County Hospital) Gen Gounty 60 60 60 84 84 84 84 84 84 84 8	and Hospital+0	Gen	Church	127	79	20	563	2,461	El Sausal Sanitarium Unit of Monterey County Hospital
Newhall, Hospital. Insteller County 96 80 4 27 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 425 4	Miners Hospital	Gen Gen							TB County 70 70 82
New New Side Hospital Gen Gorp 15 8 4 92 443 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 448 4	Newhall, 1.800—Los Angeles	InstGe							Salinas Valley Hospital Gen Indiv 25 18 9 162 846
New Side Hospital	Wildwood Sanatorium	. Unit		ew Sa	natori	um,	Olive	View	San Adreas Hospital Gen Indiv 9 3 2 6 73
Cakland, 302,105—Alameda Children's Hospital of the Children's Hospital of the Children's Hospital of the Children's Hospital A. Children	West Side Hospital	. Gen	Corp	15	8	4	92	443	St. Bernardine's Hospital Gen Church 125 47 12 476 1,697
East Bay+4 Ohli NPAss	Oakland, 302,163—Alameda	. Ment	State	2,484	2,346	••	•••	617	Charity Hospital*+A0 Gen County 245 272 17 540 44.402
Highland-Alameda County Hospitall*\(\) Gen County 455 320 20 916 10,413 Hospitall*\(\) Gen Peralta Hospitall*\(\) Gen County 134 120 40 930 5,531 County 134 136 30 1,112 7,044 San Fernalce Hospitall*\(\) Gen County 1,184 959 6,711 County 1,184 959 Count	East Bay+▲					26	1.047		Mercy Hospital Gen Church 325 323 98 2.701 11.292
Peralta Hospital — Gen Providence Hospital — Gen Church 193 150 30 1,112 7,094 Samuel Merritt Hospital — Gen Church 193 150 30 1,112 7,094 Samuel Merritt Hospital — Gen Church 193 150 30 1,112 7,094 Samuel Merritt Hospital — Gen Church 193 150 30 1,112 7,094 Samuel Merritt Hospital — Gen Church 193 150 30 1,112 7,094 Samuel Merritt Hospital — Gen Church 193 150 30 1,127 0,049 Samuel Merritt Hospital — Gen Church 193 150 30 1,127 0,049 Samuel Merritt Hospital — Gen Church 193 150 30 1,127 0,049 Samuel Merritt Hospital — Gen Church 193 150 20 365 3,495 Chinese Hospital — Gen Church 115 80 28 656 3,167 Chinese Hospital — Gen Church 193 150 28 656 3,167 Chinese Hospital — Gen Church 193 150 29 15 9 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 178 610 Chinese Hospital — Gen Church 193 150 29 150 150 150 Chinese Hospital — Gen Church 193 150 29 150 150 150 Chinese Hospital — Gen Church 193 150 150 150 Chinese Hospital — Gen Church 193 150 150 150 Chinese Hospital — Gen Church 193 150 150 150 Chinese Hospital — Gen Church 193 150 150 150 Chinese Hospital — Gen Church 193 150 150 150 Chinese Hospital — Gen Church 193 150 150 15	Highland-Alameda County								Hospital*+40 Gen County 372 298 13 589 8,397
Samuel Merritt Hospital ¹ A, Gen NPAssa 190 150 35 1,063 6,421 Olive View Sanatorium ⁺ TB County 1,114 1,087 501 Orange, 7,091—Orange Orange County General Hospital ¹ A, Gen County 197 181 20 365 3,498 St. Joseph Hospital ² A, Gen Church 115 80 28 636 3,167 Oxanara, 8,519—Ventura St. Joseph Hospital ³ A, Gen Church 115 80 28 636 3,167 Oxanara, 8,519—Ventura St. Joseph Hospital ³ A, Gen Church 115 80 28 636 3,167 Oxanara, 8,519—Ventura St. Joseph Hospital ³ A, Gen Church 115 80 28 636 3,167 Oxanara, 8,519—Ventura St. Joseph Hospital ³ A, Gen Church 29 15 9 178 610 Pacific Grove, 6,239—Mondrercy Pine Grove Sanitarium and Hospital Hos	Peralta Hospital	. Gen . Gen	NPAssn Church	145 193	150	30	1,112	7,094	U. S. Naval Hospital*** Gen Navy 1,184 959 9,711
Orange County General Gen County 197 181 20 365 3,498 San Francisco (33,536) San Francisco (33,536) San Francisco (34,536) San Francisco (34,5	Samuel Merritt Hospital. Olive View, —Los Angeles	. Gen	NPAssn	190	150	35	1,063		San Fernando, 9,001—Los Angeles
Children's Hospital*40 Gen County 197 181 20 365 3,498 Children's Hospital*40 Gen NPAssn 200 138 50 1,219 5,257 Chinese Hospital*40 Gen NPAssn 50 23 8 123 668 St. Joseph Hospital*40 Gen Church 115 80 28 656 3,167 Chinese Hospital Gen NPAssn 50 23 8 123 668 St. John's Hospital*40 Gen Church 115 80 28 656 St. John's Hospital*40 Gen NPAssn 200 138 50 1,219 5,257 Chinese Hospital Gen NPAssn 50 23 8 123 668 Chinese Hospital Gen NPAssn 200 23 23 429 5,892 Chinese Hospital Gen NPAssn 225 203 23 429 5,892 Chinese Hospital Gen NPAssn 220 138 Chinese Hospital Gen NPAssn 200 23 23 5,892 Chinese Hospital Gen NPAssn 220 138 Chinese Hospital Gen NPAssn 225 203 23 429 5,892 Chinese Hospital Gen NPAssn 225 203 23 429 5,892 Chinese Hospital Gen NPAssn 225 203 23 429 5,892 Chinese Hospital Gen NPAssn 225 203 23 429 5,892 Chinese Hospital Gen NPAssn 225 203 23 429 5,892 Chinese Hospital Gen NPAssn 203 12 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Gen NPAssn 68 31 22 48 818 Chinese Hospital Ch	Orange, 7,901-Orange	. TB	County	1,114	1,057	••	•••	501	Veterans Admin. Facility4. TB Vet 360 342 645
St. Joseph Hospital** Gen Church 115 80 28 655 3,167 San Dante Hospital Gen Corp 172 115 10 154 4,280 San Francisco Popularity San Francisco Popular	Orange County General Hospital**	. Gen				20	865		Children's Hospital*+A0 Gen NPAssn 200 138 50 1,219 5,257
St. John's Hospital	St. Joseph Hospitalso					28	656		Dante Hospital Gen Corn 172 115 10 154 4 280
Pine Grove Sanitarium and Hospital Gen MPAssn Gen Indiv 13 2 4 56 110 Hahnemann Hospital Gen NPAssn Gen Trib 68 31 12 48 818 Palo Alto, 16,774—Santa Clara Palo Alto Hospital Gen NPAssn 163 92 28 559 4,674 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Veterans Admin, Facility A. Ment Vet 1,203 1,197 337 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPAssn 161 108 20 431 4,273 Mit. Zion Hospital A. Gen NPA	St. John's Hospital	. Gen	Church	29	15	9	178	610	French Hospital*+** Gen NPAssn 220 159 12 275 4,230 Greens' Eve Hospital** ENT Part 35 15 989
Ruspital	Pine Grove Sanitarium and	đ	*- 31-						Habnemann Hospital Gen NPAssn 68 31 12 48 818
Veterans Admin. Facility Next Vet 1,203 1,197 337 Park Sanitarium N&M Corp 33 22 E99	Palo Alto, 16,774—Santa Clara	. Gen							Letterman General Hosp.** Gen Army 1,192 780 10 143 9,064
incton Memorial Hospital** incton Memorial Hospital** Gen NPAssn 203 180 35 753 6,751 St. Francis Hospital** Luse Encinas Sanitarium. Nerr& IntMed Corp 89 87 269 St. Luke's Hospital** Luther Good Samaritan Hospital Hospital Gen Church 45 35 9 219 608 St. Luke Hospital** Gen Church 75 69 24 519 2,689 San Francisco Hospital** General Diseases See Las Encinas Sanitarium Woman's Hospital Woman's Hospital Woman's Hospital Mat NPAssn 14 9 14 333 337 Patient Hospital Nent State 4,186 3,936 1,339 St. Francisco Hospital** Ment State 4,186 3,936 1,339 St. Francisco Hospital** St. Luke's Hospital** Gen Church 335 22 50 1,389 9,491 St. Mary's Hospital** GyCo 405 464 707 San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 335 22 50 1,589 9,491 St. Mary's Hospital** San Francisco Polyclinic. Gen Church 35 50 50 50 15,945 50 15,945 50 15,945 50 15,945 50 1,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,945 50 15,	Veterans Admin, Pacility.	. Ment							Mt. Zion Hospital*+40 Gen NPAssn 161 108 26 431 4,275 Park Sanitarium N&M Corp 23 22 899 St. Elizabeth's Infant Hos-
Las Encinas Sanitarium. Nerv& IntMed Corp 89 87	ington Memorial Hos-		NPAcen	505	190	25	750	6.751	pital
Luther Good Samaritan Hospital		. Nerra	S.						St. Luke's Hospital*+40 Gen Church 200 157 20 409 5,411
St. Luke Hospital									San Francisco Hospital**** Gen CyCo 931 630 50 591 15,943
tarium for Nervous and General Diseases	St. Luke Hospital Southern California Sani-								San Francisco Polyclinic Gen NPAssn 12 7 562
Woman's Hospital Mat NPAssn 14 9 14 333 337 pled Children+4 Orth NPAssn 60 59 245	tarium for Nervous and General Diseases	. See I	as Encina	s Sani	tarlur	n			Hospital
Patton State Hospital Ment State 4,186 3,936 1,339 Hospital***	Woman's Hospital Patton, 4,100—San Bernardine	. Mat o	NPAssn	14	9	14	333		pled Children+4 Orth NPAssn 60 58 245
	Patton State Hospital	. Ment	State				***		Hospital*4 Indus NPAssn 400 227 6,034

CALIFORNIA-Continued

CALIFO	JRNI	ACo	ntinu	ed				1
		<u>ت</u> ق			100	oţ		Ì
	o ပို	rsh Eth		ენ 13 - გ	net	b.,		1
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census 1	Bassinets	E th	mis	1
Stanford University Tra-	E S	0.9	ğ	48	BB	Number of Births	Admis- sions †	1
Stanford University Hos- pitals****	Gen	NPAssn	321	251	27	740		1
U. S. Marine Hospital** University of California	Gen	USPHS					8,911 5,211	1
Hospital*+** Veterans Admin. Facility*.	Gen	State	279	217	30	658	7,228	١
Veterans Admin. Facility. Sanger, 4,017—Fresno	Gen	Vet	340	331	••	•••	2,316	1
Sanger Sanitarium	Gen	Indiv	16	10	4	111	475	1
Sanitarium,500—Napa St. Helena Sanitarium and							1,0	1
Hospital 40	Gen	Church	130	91	в	107	2,542	1
San Jacinto, 1,356—Riverside Soboba Indian Hospital	Gen	IA	34	19	3	29	333	1
San Jose, 68,457—Santa Clara					·	20		1
Alum Rock Sanatorium O'Connor Sanitarium San Jose Hospital	Gen	Corp Church	45 103	33 80	30	674	$\frac{152}{3,798}$	1
Santa Clara County Hos-	Gen	NPAssn	131	101	30	943	4,561	1
pital*+40	GenTl	County	536	454	35	813	7,501	1
torium+	Unit o	of Santa	Clara	Count	v H	osnita	1	1
torium+ Sunnyholme Preventorium	Unit o	of Santa	Clara	Count	уH	ospita	i	ĺ
San Leandro, 14,601—Alameda Fairmont Hospital of Ala-								1
meda County+4⊙	Gen TB	County County	656	631 99			1,417	Ì
San Luis Obispo, 8,881—San Lu	ils Obis	ро	100	บบ	••	•••	448	}
Mountain View Hospital San Luis Obispo County	Gen	Indiv	20	15	5	81	885	1
Tuberculosis Sanatorium.,	Unit o	of San Li	is Obi	spo G	ener	al Ho	spital	1
San Luis Obispo General Hospital			110	48	8	107	1,480	ł
San Luis Sanifarium	Gen	Indiv	25	14	7	137	1,000	
San Mateo, 19,403—San Mateo Community Hospital of San	n							-
Mateo County	Gen	County	158	128	12	159	2,079	İ
Mills Memorial Hospital	TB Gen	County Church	42 124	34 92	38	526	66 3,883	}
San Pedro, -Los Angeles		_					•	
San Pedro Hospital Station Hospital	. Gen Gen	Corp Army	110 86	65 35	29	512	2,432 1,288	
San Quentin, 328—Marin		•						
Charles L. Neumiller Memo Hospital	Inst	State	150	125			1,280	
San Rafael, 8,573—Marin Marin County Hospital	GenTh	County	70	58			90	1
San Rafael Cottage Hosp., (Gen	Indiv	40	25	15	271	1,163	
Santa Barbara, 31,958—Santa I St. Francis Hospital**	3arbar: Gen	Church	85	63	20	242	2,245	
Santa Barbara Cottage					20	273		
Hospital*A♥	Gen	NPAssn	165	112			3,921	
Hospitai×A	Gen TB	County County	190 110	114 73	12	229	2,137 90	
Santa Cruz, 16,896-Santa Cruz						401)	ľ
Santa Cruz County Hosp. Santa Cruz Hospital	Gen Gen	County	150 35	145 28	6 12	131 230	1,333 1,274	
Sisters Hospital	Gen	Church	30	•••	10	Estab.		
Sisters Hospital	Jara							
Santa Monica, 53,500—Los Ange	eles	Church	45	29	14	273	1,496	١.
Santa Monica Hospital*	Gen	Church	150	135	30	1,575	6,727	
Santa Rosa, 12,605—Sonoma Eliza Tanner Hospital	Gen	Part	20	14	5	187	759	1
General Hospital Sonoma County Hosp.	Gen	Indiv County	41 315	15 267	8 14	113 286	858 2,854	
Sonoma County Hosp.	TB	County	111	96	•••	•••	58	2
	Gen	NPAssn	35	13	4	97	768	
		Corp	21	13	5	161	1,175	:
		-						
Shasta Dam Hospital	Indus	NPAssn	25	19	••	•••	867	(
•		Indiv	25	13 23	4	52 44	647 493	1
1	:11	County	41					1
h.		Corp	46	39	20	1,006	1,813	1
···		Indiv	100	78	••	•••	99	
	'' ec			• •	. و .	40 c	1100	1
pital	GeII	Corp	34	N	aa	ta sup		
Pacific Colony	MeDe	State	1,734	1,251	••	•••	457	1
THIRTP-KINES COUNTIES DOM:				*00			7,5	1
nanhoronlogic Hospital	TD .	Counties	146	128	••	•••	145	I
Stockton, 54,714—San Joaquin Dameron Hospital	Gen	Corp	76	63	18	359	2,717	
St. Joseph's Home and	Con	Church	95		15		2,951	
Stockton State Hospital Susanville, 1,575—Lassen Riverside Hospital	Ment	State	4,632	4,448	••		1,558	
Riverside Hospital	Gen	Indiv	40	11	G	54	640	
Talmage, 350-Mendocino Mendocino State Hospital+	Ment	State	2,951	2,725	٠.		952	
Tehachapi, 1,264—Kern	Gen	Indiv	15	9	4	5G	436	
Riverside Hospital Talmage, 350—Mendocino Mendocino State Hospital+ Tehachapi, 1,264—Kern Tehachapi Valley Hospital. Terminal Island, —Los Angeles	J.11						- 1	
Federal Correctional Hos- pital	Inst	USPHS	41	35	••		515	
hirat-			Key	to sy	mbo	is and	abbrev	ia

CAT	TEO	DATE		
CAL	aro	RNI	AC	Antinua

1	CALIFO	RN	IACo	ntinu	ıed			
	,		<u></u>				Jo	
		1 0 E	rshi utr		Average Census t	Bassinets	0 10	1
i	Hospitals and Sanatoriums	Type	g S	ş	ern	sstr	đặt.	7 t
1	Torrance, 9.950-Los Angeles	Ew	Óő	ğ	ર્વે	Ва	Number of Births	Ad
1	Torrance, 9,950—Los Angeles Jared Sidney Torrance Me-	_						
1	Trong, 775—San Bernarding	Gen	NPAssn	38	27	12	416	1,254
Į	Trona Hospital Tulare, 8,259—Tulare	Gen	NPAssn	20	9	6	56	646
j	Last Tuiare Hospital	Gen	Indiv	12	7	12	368	473
1	pital	Con	County	103	83	15	660	
1	Tulare Hospital	Gen	Indiv	24		4	6	3,113 813
}	Emanuel Hospital	Gen	Church	40	21	8	176	910
1	Upland, 6,316—San Bernardino	Gen	Indiv	15	6	6	•••	345
1	San Antonio Community	٧	NTO 4		۸-			
}	Vallejo, 20,072—Solano	~	NPAssn	60	35	22	277	1,949
l	Vallejo General Hospital (Ventura, 13,264—Ventura	ien.	Indiv	70	45	15	500	1,350
1	Bard Memorial Hospital I Foster Memorial Hospital	Jnit o	of Ventura	Coun	ty Hos	pital	190	1,339
]	rentara County Hospitara.	en	County	290	219	10		4,483
ļ	Veterans Home, 1,866—Napa Veterans Home Hospital I	nst	State	266	220			1,617
I	Vincburg, 100—Sonoma Burndale Hospital 6		Indiv	15	5	3	35	161
Ì	V 189 119 8 904Triplere							
-	Visalia Municipal Hospital. 6 Watsonville, 8,937—Santa Cruz Watsonville Hospital 6	rett	City	50	23	15		1,417
1	Watsonville Hospital G Weed, 5,000—Siskiyou	en	Corp	37	27	10	244	1,279
	Weed Hospital G Weimar, 125—Placer	en	Part	16	9	4	83	431
l	Weimar Joint Sanatorium., T	В	Counties	567	514	٠.	•••	403
1	West Los Angeles, -Los Angeles Veterans Admin. Facility Ger	Meni	t Vet	2,431	2,283		9	9,844
ļ	Westwood, 5,000-Lassen				•			
1	Westwood Hospital G Willits, 1,625—Mendocino	en	NPAssn	42	20	10	131	1,112
}	Frank R. Howard Memorial Hospital G		NPAssn	22	14	5	67	613
ĺ	Woodland, 6,637-Yolo							.034
}	Woodland Clinic Hospital G Yosemite National Park, 500—Ma Lewis Memorial Hospital G	en Tipos	Part a	65		-		•
1	Lewis Memorial Hospital G Yreka, 2,485—Siskiyou	en	Indiv	14	6	2	20	336
	Siskiyou County General		Countr	165	156	14 :	165 1	.506
	Hospital Ins Yuba City, 4,968—Sutter Sutter County HospitalIns	. C.	T 3tm					,085
1	Yuba City General Hospital Ins	stGen en	Indiv Indiv	67 20	28 15			916
1	Related Institutions							
	Altadena, -Los Angeles Pasadena Preventorium Co		****		07			56
	Artesia, 3,891—Los Angeles		NPAssn	40	37 .	•	••	170
	Pioneer Sanitarium No Azusa, 5.209—Los Angeles	&M	Indiv	53	45 .		•••	110
	Azusa, 5,209—Los Angeles Rural Rest Home and Sani-	\n 1 7	NPAssn	96	83 .		:	246
ı	tarium	/II V						
	Chas. S. Howard Founda-	Chil:	NPAssn	20	18 .			36 73
	Chas. S. Howard Foundation The Hillwell No. No. Claremont, 3,057—Los Angeles Claremont Colleges Infirm-	em :	Indiv	. 42	30 .		••	,
			NPAssn	22	4.		8	313
	ary Ins Duarte, 2,000—Los Angeles							
	Palm Grove Sanatorium N&	IN	Part Church	55 120	50 ·	-		22
	•				_			73
	Hospital	• (County	16	3	••	•	5
	VIIII BUILW REST HOME		Indiv	25	25	••	•	
	Keene, 164—Kern Kern County Preventorium Tb La Crescenta, 3,000—Los Angeles	Сыі (County	44	32	••	•	27
		M 3	Part	28	20	••	. 15	:4
	Lancaster, 2,400—Los Angeles Antelope Valley Sanatorium						,	13
		I	Part	118	•••	••	•	
	Larkspur, 1,558—Marin Larkspur Convalescent and	T	ndív	13	5		. 5	0
	Rest Home Con Lincoln, 2,044—Placer	1V 1			10		. 1	2
	Joshin's Sunatorium		ndiv	15			31	2
	California Sanitarium Cor Los Angeles, 1,504,277—Los Angeles Chase Diet Sanitarium Con	ıv L	ndiv	26	26	•••	17.	
٠	Chase Diet Sanitarium Con	v P	art adiv	22 14	15 ··· 12 ··	۰۰۰ ټنه	3	ī
	Plorence Crittenton Home. Mat	, N		44	24 6	67		
	Junior League Convaictees Con	v N		24	22 ·· 36 ··		173	•
	Resthaven N&: St. Anne's Maternity Hosp. Mat St. Barnabas Rest Home	M N C			16 11	127	137	
	St. Barnabas Rest Home for Men	v C		15	11		161	
	Salvation Army Women's				51 8	151	201	
	Home and Hospital Mar				45		51	
	tarium	ון ני	div					
ı,	itions is on page 1071							

CALIFOR	NIA	Conti	nued				1	COLORADO—Continued	
•	Service	Control		Census †	Bassinets		sions †	Hospitals and Service Ownership or Control Beds Average Consus t Bassinets Number of Births Admis- sions t	
Related Institutions	Ser	0. 0.	Beds	S E	Bas		sto:	다ipple Creek, 2,358—Teller	
Monrovia, 12,807—Los Angeles Maryknoll Sanatorium TE Montebello, 8,016—Los Angeles Los Angeles Convalescent	3 (Church	50	50 .		• • •	51	Cripple Creek Hospital Gen NPAssn 25 11 6 86 bb/ Del Norte, 1,923—Rio Grande St. Joseph's Hospital and	
Home Co National City, 10,344—San Diego	nv 1	NPAssn	42	30	•	•••	419	Sanatorium	
Hillcrest Home N& Oakland, 302,163—Alameda	èM I	ndiv	50	40	•	•••	67	Western Slope Memorial Hospital	
Salvation Army Women's Home and Hospital Mr Pacoima,—Los Angeles Independent Order of For-	it (Church	66	60 :	88	129	175	Bethesda Sanatorium TB Church 65 24 37 Beth Israel Hospital⁴▲ Gen NPAssn 55 35 10 61 1,198 Childrens Hospital⁴▲ Chil NPAssn 200 121 4,260	
esters California Tuber- culosis Sanitarium TI	3 3	NPAssn	60	10			20	Colorado Psychopathic Hos-	
Rosemend Lodge No	em 1	ndiv	68	38			187	pital+40	
Ross, 1,751—Marin Cedars Development School Me	eDe (Corp	46	33	••		46	Ex-Patients' Tubercular Home	
San Diego, 203,341—San Diego Fraser Hall	on v	Part	25	16			110	Fitzsimons General Hosp Gen Tb Army 1,185 888 6 77 7,314 Mercy Hospital* Gen Church 210 182 30 829 7,838	
Pauling Rest Home T	B	County	56	50	• •	•••	35	National Jewish Hospital+A. TB NPAssn 257 238 211	
San Francisco, 634,536—San Francisco, Garden Nursing Home In	cur :	NPAssn Corp	67 21				73 35	Porter Sanitarium and Hos- pital*	
Greer Home		Corp Part	S5		••		61	Presbyterian Hospital*A○ Gen Church 150 119 25 885 5,067 Robert W. Speer Memorial Hospital for Children Unit of Denver General Hospital	
Mission Lodge Sanitarium. N. San Marino Sanitarium N	&M :	Indiv Part	60 75	60			45 61	St. Anthony Hospital** St. Joseph's Hospital** Gen Church 190 122 30 739 4,089 St. Joseph's Hospital* Gen Church 246 217 54 1,026 7,397	
San Jose, 68,457—Santa Clara Beale Sanitarium			15				42	St. Luke's Hospital*+40 Gen Church 219 180 40 788 7,525 Steele Memorial Hospital Iso CyCo 80 23 624	
San Mateo, 19,403—San Mateo San Mateo PreventoriumT		NPAssn	28	22			19	Durango, 5,887—LaPlata Mercy Hospital • Gen Church 55 36 9 170 2,289	
Santa Barbara, 34,958—Santa Ba La Loma Feliz	rbara		20	20			20	Ochsner Hospital Gen Part 33 20 7 98 728 Edgewater, 1,648—Jefferson	
Santa Monica, 53,500—Los Angele Loamshire Convalescent Hos-	es							Craig Colony TB NPAssn 50 38 23 Sands House TB NPAssn 44 34 24	
pital and Rest Home C Stanford University, 720—Santa	ony Clara	Corp	22	15	••	•••	156	Englewood, 9,680—Arapahoe Federal Correctional Insti-	
Stanford Convalescent Home		NPAssn	80	77			178	tution Inst USPHS 25 3 Estab, 1940 Swedish National Sana-	
Sunland, —Los Angeles Sunland Sanatorium T	В	Corp	60	51			91	torium	
Tujunga, -Los Angeles Reslock Health Retreat C	Chil	Indiv	34	26			55	Fairplay Hospital Gen Indiv 14 5 2 28 201 Fort Collins, 12,251—Larimer	
Verdugo City, 1,500—Los Angeles Rockhaven Sanitarium N	8 1&M	Indiv	100	100			58	Larimer County Hospital Gen County 52 42 8 330 1,831 Fort Logan, 800—Arapahoe	
								Station Hospital Gen Army 74 39 677 Fort Lyon, 1,180—Bent	
co	LO	RADO						Veterans Admin. Facility Ment Vet 805 690 145 Fort Morgan, 4,884—Morgan	
		to i		e1 +	ş	jo.		Fort Morgan HospitalGen Indiv 25 15 6 112 615 Fruita, 1,466—Mesa	
Hospitals and Sanatoriums	Type of Service	Ownership or Control	ls	Average Census t	Bassinets	Number Births	Admis- sions †	Fruita Community Hospital Gen Indiv 8 2 2 37 176	
	Ser	0. 01.	Beds	AA	Ba	Nu	Adj		
Alamosa, 5,613—Alamosa Community Hospital	Gen	Church	43	24	8	258	1,339	St. Mary's Hospital Gen Church 65 38 12 277 1,487 Greeley, 15,995—Weld Greeley Hospital Gen County 108 88 26 550 3,579	
Aspen, 777—Pitkin Citizens' Hospital	Gen	NPAssn	15	5	2	8	60	Gunnison, 2,177—Gunnison Gunnison Community Hosp, Gen Indiv 25 7 5 54 369	
Boulder, 12,958—Boulder Boulder-Colorado Sanitarium and Hospital**		Church	101	39	6	38	1,274	Hayden, 640—Routt Solandt Memorial Hospital. Gen NPAssn 16 11 3 57 374	
Boulder County Hospital Community Hospital	Gen	County NPAssn	40 45	41 28	6 12	75	617 1,283	Holyoke, 1,150—Phillips Holyoke Hospital Gen Indiv 8 4 2 10 289	
Brush, 2,481—Morgan Eben-Ezer Hospital	Gen	Church	24	14	8	95	642	Ignacio, 555—LaPlata Edward T. Taylor Indian	
Brush, 2,481—Morgan Eben-Ezer Hospital Canon City, 6,600—Fremont Colorado Hospital	Gen	Indiv	28	19	5	64	630	Hospital Gen IA 44 18 3 21 649 Julesburg, 1,019—Sedgwick Community Hospital Gen Indiv 10 5 4 45 244 La Junta, 7,040—Otero Atchicon, Topeka and Santa	
Hospital	Inst	State	45	41		•••	1,733	Community Hospital Gen Indiv 10 5 4 45 244 La Junta, 7,040—Otero Atchison, Toncka and Santa	
St. Thomas More Hospital Cheyenne Wells, 695—Cheyenne		Church	40	15	6	83	512	Fe Railroad Hospital Indus NPAssn 36 22 494 Mennonite Hospital and	ŕ
Cheyenne County Hospital Climax, 250—Lake	Gen	Indiv	31	5	6	24	191	Sanstarium GenTb Church 71 59 14 167 1,045 Leadville, 4.774—Lake)
Climax Molybdenum Com- pany Hospital Colorado Springs, 36,789—El Pa	Indus	NPAssn	10	3	••	•••	194	St. Vincent Hospital Gen Church 36 16 10 100 350 Longmont, 7,406—Boulder)
Beth-El General Hospital and Sanatorium*40		Church	136	73	22	343	2,194	Longmont Hospital Gen Indiv 33 17 7 73 735 St. Vrain Hospital Gen Indiv 25 12 5 35 405	j
Colorado Springs Psycho-	TB	Church	61	42		•••	65	Loveland, 6,145—Larimer Loveland Hospital and	
pathic Hospital	N&M	Part	150	125	••	•••	135	Clinic	
Hospital*	Gen TB	Church Church	100 60	70 44	12	203	1,963 68	St. Gen Indiv 16 8 8 82 404 Oak C Oak Creek Hospital Gen Indiv 15 6 3 31 338	
National Methodist Episcopal Sanatorium for Tuber- culosis						tal ni		Ouray, 951—Ouray Bates Hospital and Sani-	
Observation Hospital	San Unit	atorium of Beth-E						Pueblo, 52,162—Pueblo Colorado State Hospitalta Ment State 4 190 4 005	
St. Francis Hospital and Sanatorium*	San	atorium Church			15		1,584	Corwin Hospital A	2
Union Printers Home and Tuberculosis Sanatorium.	TB	Church NPAssn	75 75 112	45 109	••	•••	71 207	Woodcroft Hospital N&M Corp 130 65 170)
Cortez, 1.778-Montezuma	TB	NPAssn	60	33	••	•••	30	Physicians Hospital Gen NPAssn 10 9 3 142 521 Salida, 4,909—Chaffee Denver and Rio Grande West-	
Johnson Hospital	. Gen	Indiv	15 15	8 ev ta		54 - ماد -	399 ad abb	ern Railroad Hospital* Gen NPAssn 62 45 4 101 1,420	•

COLORA	ADO—Cor	itinue	d			CONNECTICUT—Continued							
	r hip troj		c) +- #	, o		40							
Hospitals and Sanatoriums	Service Ownership	Beds	Average Census † Bassinets	Number Births	Admis. sions †	Type of Service Ownership or Control Beds Average Census t Bussinets Bussinets Admits							
Spiyak, 350—Jefferson Sanatorium of the Jewish Consumptiyes' Relief						Municipal Hospitals*+40 GenIso City 315 143 34 193 3,517 Neuro-Psychiatric Institute							
Society+4	TB NPAss	n 300	224	•••	153	of the Hartford Retreat+ N&M NPAssn 270 280							
Good Samaritan Hospital St. Benedict Hospital	en Church Gen Church		16 10		880 925	Kent, 1,245—Litchfield Kent School Infirmary Inst NPAssn 96							
Towaoc, 50—Montezuma Ute Mountain Indian Hosp. (26	18 0 10 4		369	Lakeville, 1,500—Litchfield Hotchkiss School Infirmary. Inst NPAssn 36 15							
Trinidad, 13,223—Las Animas Mt. San Rafael Hospital*.			33 7		797	Manchester, 23,000—Hartford Manchester Memorial Hosp. Gen NPAssn 100 87 20 434 3.141							
Walsenburg, 5,855—Huerfano Lamme Brothers Hospital. (20	8 2	_	350	Meriden, 39,494—New Haven Meriden Hospital*Ao Gen NPAssn 116 88 24 571 2812							
Wheat Ridge, 500—Jefferson Evangelical Lutheran Sani-	1 1 1 1 1 1 1	20	0 2	. 11	,,,,,	Undercliff, Meriden State Tuberculosis Sanatorium. ThChil State 206 276 211							
tarium	TB Church	110	77	•••	58	Middletown, 26,495—Middlesex Connecticut State Hospital+ Ment State 3.155 3.644							
Modern Woodmen of America Sanatorium ▲	B NPAss	n 155	74		85	Middlesex Hospital** Gen NPAssn 140 99 27 554 3,507 Milford, 11,300—New Haven							
Wray, 2,061—Yuma Wray Hospital	en Indiv	15	5 6	62	280	Milford Hospital							
Related Institutions Boulder, 12,958—Boulder						pital** Gen NPAssn 230 174 50 1,115 6,021 New Haven, 160,605—New Haven							
Mesa Vista Sanatorium	TB Part	60	39	•••	46	Dr. J. H. Evans' Private Hospital							
Burlington Hospital (Collbran, 301—Mesa	Sen Part	8	4 4	65	321	Grace Hospital*+A0 Gen NPAssn 230 180 40 1,177 6,000 Hospital of St. Raphael*A0 Gen Church 240 213 40 1,129 7,600							
Plateau Valley Congregation Hospital	en Churc	ı 13	5 5	35	215	New Haven Hospital*+Ao Gen NPAssn 521 434 50 1,213 11,433 Psychiatric Clinic, Yale School of Medicine							
Colorado Springs, 36,789—El Pas Cragmor Sanatorium		n 125	30		65	of Medicine							
Denver, 322,412—Denver Florence Crittenton Home						Newington, 5,449—Hartford Newington Home for Crippled							
(Mary H. Donaldson Woman's Hospital)!	Int NPAss		6 9		135	Children							
St. Francis Sanatorium			16 28 18		44 118	New London, 30,456—New London Home Memorial HospitalGen NPAssn 50 34 10 143 975							
Englewood, 9,680—Arapahoe Costello Home			8	•••	8	Lawrence and Memorial Associated Hospitals*Ao Gen NPAssn 208 130 40 826 3,735							
Temple Sanatorium I Flagler, 506—Kit Carson		30	29	•••	204	Dr. Lena's Surgical Hospital Surg Indiv 26 19 604 U. S. Coast Guard Academy Hospital							
Flagler Hospital	en Indiv	10	5 4	52	227	New Milford, 3,000—Litchfield							
Hospital-State Industrial School for Boys	nst State	25	7	•••	548	New Milford Hospital Gen NPAssn 30 10 6 71 330 Newtown, 603—Fairfield Fairfield State Hospital Ment State 2,003 1,363 1,255							
Grand Junction, 12,479—Mesa State Home and Training						Norwalk, 39,849—Fairfield Norwalk General Hosp.** Norwalk General Hosp.** Norwalk General Hosp.** Norwalk 39,849—Fairfield Norwalk 39,849—Fairfield Norwalk 39,849—Fairfield							
School for Mental Defec- tives	IeDe State	525	312	•••	42	Norwich, 23,652—New London Norwich State Hospital+0 Ment State 2,711 2,414 711							
Island Grove Hospital I Homelake, 225—Rio Grande	nstIso Count	7 67	51	•••	180	Norwich State Tuberculosis Sanatorium (Uncas-On-							
Colorado State Soldiers and Sailors Home	nst State	35	20		•••	William W. Backus Hosp.*Ao Gen NPAssn 131 86 29 606 3,193							
Ridge, 207—Jefferson State Home and Training						Portland, 2,500—Middlesex Elmcrest Manor N&M Indiv 32 31							
School for Mental Defec- tives	leDe State	325	310		36	Day Kimball Hospital Gen NPAssn 60 62 10 253 1755							
Yuma, 1,606—Yuma Yuma Community Hospital. (en NPAss	12	No đ	ata sup	plied	Sharon, 500—Litchfield AFASSI 35 15 757							
CON	NECTICU	ſТ				Shelton, 10,971—Fairfield							
	d jo	_	, pç	'n		culosis Sanatorium+4 TB State 382 363							
	Type of Service Ownership or Control	80	Average Census † Bassinets	Number Births	nis-	Southbury Training School. MeDe State 1,500 500							
Hospitals and Sanatoriums Bridgeport, 147,121—Fairfield	Ser Own	Beds		Bird	Admis	Bradley Memorial Hospital Gen NPAssn 14 1 2 South Norwalk, —Fairfield							
Bridgeport Hospital** Englewood Hospital I	ien NPAssi so City	1 326 116	306 74 13	1,873 1	283	Woodscourt (Wadsworth Sanitarium)							
St. Vincent's Hospital**	B Oity	34 270	6 263 55	1,541	100 8,440	Stafford Springs, 3,401—Tolland Cyril and Julia O. Johnson Memorial Hospital4 Gen NPAssn 40 25 10 152 657							
Bristol, 30,167—Hartford Bristol Hospital+A		100	101 25	642	4,065	Stamford, 47,938—Fairfield Dr. Barnes Sanitarium N&M Corp 60 35 115 Stamford Hall N&M Corp 150 120 :: 072 5.577							
Robert C. Geer Memorial Hospital	en NPAss	25	10 7	55	539	Stanford Hospital** Gen NPASSI 25 10 1 9 Tophassee Grange N&M Corp 26 11 9							
Cromwell, 2,700—Middlesex Cromwell Hall		33	16	•••	90	Torrington, 26,988—Litchneid Charlotte Hungerford Hos-							
Danbury, 22,339—Fairneid Danbury Hospital*		180	178 30		3,243	Wallingford, 11,425—New Haven Covilord Form Sanatoriumt, TB NPAssa 145 137 203							
Derby, 10,287—New Haven Griffin Hospital			72 26		2,634	Waterbury, 99,314—New Haven							
Hall-Brooke Sanitarium		75	42	•••	193	Waterbury Hospital Ave Gen Military							
Blythewood	&M Corp ien NPAssi	79 1 115	53 90 20	411	2,652	The Senside Tolerand N&M Corp 110 79							
HospitalChi	Conv Church	110	81	•••	883	77 18 261 2,00)							
Avery Convalescent Hospital. I	Init of Hartf B State	ord Ho 350	spital 326 610 146	3 061 10	293 2345	Gen APASSI 10 21 1,123							
Hartford Hospital*+** 6 Mt. Sinai Hospital*		54	46 G	123 7	[,739]	Gen Mines							
-		Ke	y to symt	ons and	' Saate	viations is on page 1071							

CONNEC	ricu	TCor	tinu	eđ			1	DISTRICT OF COLUMBIA—Continued
Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions }	Survice Ownership or Control Beds Average Census † Bassinets Admis- slons †
Avon, 1,000-Hartford	£8	09	ă	Ąů	ğ	Z	alc Sic	District of Columbia Reforma-
Avon Old Farms Infirmary. Bridgeport, 147,121—Fairfield		NPAssn	12	2	••	***	115	tory Hospital (Lorton, Va. P.O.)
Hillside Home and Hospital. Cheshire, 4,352—New Haven		City	800	275	••	•••	836 199	Doctors Hospital+4 Gen Corp 230 199 65 1,265 7,730 Eastern Dispensary and Casualty Hospital Gen NPAssn 147 96 12 23 3,463
Connecticut Reformatory East Lyme, 3,338—New London Ida Thompson Hospital		State f Connec	28 tiout	5 State	Fari	m for	199	Episcopal Eye, Ear and Throat Hospital+4 ENT Church 105 72 6,886
Greenwich, 5,981—Fairfield	Womer	, Niantic			~ 44.2			Freedmen's Hospital*+40 Gen USPHS 402 288 48 1,271 5,488 Gallinger Municipal Hos-
Municipal Hospital Mansfield Depot, 300—Tolland	TbIso	City	72	36	••	***	157	pital*+40
Mansfield State Training Scho and Hospital	ol MeDe	State	1,266	1,150	••	***	186	Georgetown University Hos- pital**** Gen NPAssn 223 181 51 1,342 6,224
Meriden, 39,494—New Haven Connecticut School for Boys New Canaan, 2,372—Fairfield	Inst	State	30	7	••	•••	300	George Washington University Hospital***
Silver Hill Foundation New Haven, 160,605—New Haver		Corp	25	25	••	•••	148	National Homeopathic Hos- pital*
Jewish Home for the Aged. Yale Infirmary	Inst	NPAssn NPAssn	96 30	96 10		•••	19 760	St. Elizabeths Hospital (****) Gen USPHS 454 422 2 2 2,201
Niantic, 1,312—New London Connecticut State Farm for Women	Tnat	State	75	60	8	57	192	Sibley Memorial Hosp.***** Gen Church 253 200 96 2,136 8,837 Tuberculosis Sanatorium***
Rocky Hill, 1,000—Hartford State Veterans Hospital		State	284	107			1,603	(Glenn Dale Sanatorium, Glenn Dale, Md. P.O.) TB City 686 654 570 U. S. Naval Hospital** Gen Navy 205 186 2,177
Waterbury, 99,314—New Haven Connecticut Children's Hosp.	MeDe	Indiv	125	112	٠,		71	U. S. Navai Hospitaira Gen Navy 205 186 2,177 U. S. Soldiers' Home Hosp. A Inst Gen Fed 466 260 1,472 Veterans Admin, Facility+A. Gen Vet 327 302 4,685
West Hartford, 33,776—Hartford, St. Agnes Home.	Mat	Church	9	2	6	75	75	Walter Reed General Hos- pital***
West Haven, 30,021—New Haver West Haven Convalescent Home		Indiv	22	22			22	Washington Sanitarium and Hospital**
West Suffield, 700—Hartford Travelers Rest House			40	6		•••	63	Related Institutions
Wethersfield, 9,644—Hartford Connecticut State Prison			00	7.0			910	Washington, 663,091 District Training School (Laurel, Md. P.O.) MeDe City 720 604 4 98
Hosptial		State	30 12	16 8	••		242 24	Florence Crittenton Home. Mat NPAssn 50 49 46 98 111 Home for the Aged and
Woodnost man	1001	amuit		J	••	•••	~*	Infirm Inst City 150 130 150 Kendall House Sanitarium. Conv Indiv 22 10 60
D	ELA	VARE				ot ot		National Training School for Boys Hospital Inst Fed 30 13 2,168 Washington Home for In-
Hospitals and Sanatoriums	to a	ershi) ontro		age us †	Bassinets	ber (* +	curables Incur NPAssn 185 174 81
·	Type of Service	Ownership or Control	Beds	Average Census †	Basi	Number Births	Admis- sions f	FLORIDA
Dover, 5,517—Kent Kent General Hospital		NPAssn	S Bede		Bag 10		1,367 1018	s s of
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital**	Gen Ment	NPAssa State	60					s s of
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital*A Fort Dupont (Delaware City P Station Hospital	Gen Ment	NPAssa State	60	37	10	204	1,367	Type of Service Control Average Census † Bassinets Number of Births Admis.
Dover, 5.517—Kent Kent General Hospital Farnhurst, 500—New Castle Delaware State Hospital 4A Fort Dupont (Delaware City P	Gen Ment O), Ne	NPAssa State w Castle	60 1,247	37 1,198	10	204	1,367 327	Hospitals and Sanatoriums Areadia, 4,055—DeSoto Areadia, 6,055—DeSoto Areadia General Hospital Gen Corp 26 10 3 157 688 Bartow, 6,158—Polk
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital**A Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital* Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium	Gen Ment O.), Ne Gen Gen	NPAssn State w Castle Army	60 1,247 46	37 1,193 8	10	204	1,367 327 367	Hospitals and Sanatoriums Area dia, 4,055—DeSoto Area dia, 4,055—DeSoto Area dia General Hospital Gen Corp 26 10 3 157 688 Bartow, 6,159—Polk Bartow General Hospital Gen City 15 6 3 75 660 Polk County Hospital Gen County 60 51 3 1140
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital*A Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital*O Marshallton, 1,500—New Castle Brandgwine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home	Gen Ment O.), Ne Gen Gen TB	NPAssa State w Castle Army NPAssa State	60 1,247 46 104 160	37 1,198 8 46 134 33	10 9	204 127	1,367 327 367 1,455 129	Hospitals and Sanatoriums Arcadia, 4,053—DeSoto Arcadia General Hospital Gen Bartow, 6,168—Polk Bartow General Hospital Gen Polk County Hospital Gen Bay Pines, —Pinellas Veterans Admin. Facility Gen Bradento, 7,444—Manatee Bradento, 7,444—Manatee
Dover, 5.517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital*A- Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital*A- Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Miliord, 4,213—Sussex Miliord Memorial Hospital	Gen Ment O.), Ne Gen Gen TB TB	NPAssn State W Castle Army NPAssn State State	60 1,247 46 104 160 40 20	37 1,193 8 46 134 33 8	10	204 127 43	1,367 327 367 1,455 129 45	Hospitals and Sanatoriums Areadia, 4,053—DeSoto Areadia, 4,053—DeSoto Areadia General Hospital Gen Polk County Hospital Gen Bay Pines, —Pinellas Veterans Admin. Facility A Gen Bradenton, 7,444—Manatce Bradenton General Hospital. Gen Century, 2,000—Escambia
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital** Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital** Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital* Smyrna, 1,570—Kent Delaware State Welfare Home Hospital	Gen Ment O.), Ne Gen Gen TB TB Mat Gen	NPAssn State w Castle Army NPAssn State State Indiv NPAssn	60 1,247 46 104 160 40 20	37 1,198 8 46 134 33 8	10 9 	204 127 43 260	1,367 327 367 1,455 129 45 80	Hospitals and Sanatoriums Arcadia, 4,053—DeSoto Arcadia General Hospital Gen Bartow, 6,158—Polk Bartow General Hospital Gen Corp 26 10 3 157 688 Bartow General Hospital Gen Polk County Hospital Gen Bay Pines, —Pinellas Veterans Admin. Facility A Gen Bradenton, 7,444—Manatee Bradenton General Hospital. Gen Century, 2,000—Escambia Turberville Hospital Gen Chattaboochee, 3,000—Gadsden
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital** Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital** Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital* Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute	Gen Ment O.), Ne Gen TB Mat Gen InstGe	NPAssn State w Castle Army NPAssn State State Indiv NPAssn	60 1,247 46 104 160 40 20	37 1,198 8 46 134 33 8	10 9 10 18	204 127 43 260	1,367 327 367 1,455 129 45 80 2,172	Hospitals and Sanatoriums Arcadia, 4,053—DeSoto Arcadia General Hospital Gen Bartow, 6,158—Polk Bartow General Hospital Gen Corp 26 10 3 157 688 Bartow General Hospital Gen Polk County Hospital Gen Bay Pines, —Pinellas Veterans Admin. Facility A Gen Bradenton, 7,444—Manatee Bradenton General Hospital. Gen Century, 2,000—Escambia Turberville Hospital Gen Chattaboochee, 3,000—Gadsden
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital*A: Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital*O Marshaliton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospitalo Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute The Nemours Founda- tion* Delaware Hospital**	Gen Ment O.), Ne Gen TB TB Ment Gen InstGe	NPAssn State w Costle Army NPAssn State State Indiv NPAssn n StateCo	60 1,247 46 104 160 40 20 100 111	37 1,198 8 46 134 33 8 54 75	10 9 10 18 8	204 	1,367 327 367 1,455 129 45 80 2,172 1,066	Hospitals and Sanatoriums Arcadia, 4,053—DeSoto Arcadia General Hospital Gen Bartow, 6,158—Polk Bartow General Hospital Gen Corp 26 10 3 157 688 Bartow General Hospital Gen Polk County Hospital Gen Bay Pines, —Pinellas Veterans Admin. Facility A Gen Bradenton, 7,444—Manatee Bradenton General Hospital. Gen Century, 2,000—Escambia Turberville Hospital Gen Chattaboochee, 3,000—Gadsden
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital** Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital** Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital* Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute of The Nemours Founda- tion* Delaware Hospital** Delaware Hospital** Delaware Mospital** Delaware Mospital**	Gen Ment O.), Ne Gen TB TB Mat Gen InstGe	NPAssn State W Constle Army NPAssn State State Indiv NPAssn n StateCo ill NPAssn NPAssn NPAssn Of Wilmin Corp	60 1,247 46 104 160 40 20 100 111 85 847 gton 15	37 1,198 8 46 134 33 8 54 75 70 Gener:	10 9 10 18 8	204 127 43 260 60 60 ospita 63	1,367 327 367 1,455 129 45 80 2,172 1,066	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital** Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital** Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital* Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute of The Nemours Founda- tion* Delaware Hospital** Delaware Hospital** Delaware Hospital** Deross Memorial Hospital Gross Private Hospital Gross Private Hospital** St. Francis Hospital** St. Francis Hospital**	Gen Ment O.), Ne Gen TB TB Mat Gen InstGe	NPAssn State w Castle Army NPAssn State State Indiv NPAssn n StateCo	60 1,247 46 104 160 40 20 100 111 83 847 gton 15	37 1,198 8 46 134 33 8 54 75 70 Gener:	10 9 10 18 8	204 127 43 260 60 ospita 634	1,367 327 367 1,455 129 45 80 2,172 1,066	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital** Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital** Beebe Hospital** Marshaliton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital* Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute The Nemours Founda- tion* Delaware Hospital. Gross Private Hospital. Memorial Hospital** St. Francis Hospital. Memorial Hospital** Wilmington General Hospital**	Gen Ment O.), Ne Gen Gen TB TB Mat Gen InstGe le orthCh Gen Unit Gen Gen Gen	NPAssn State W Castle Army NPAssn State State Indiv NPAssn nStateCo iii NPAssn NPAssn Of Wilmin Corp NPAssn	60 1,247 46 104 160 40 20 100 111 85 347 gton 15 210 105	37 1,193 8 46 134 33 8 54 75 70 170 Generar 7 123 67	10 9 10 18 8 8 6 43 35	204 127 43 260 60 ospita 634	1,367 327 367 1,455 129 45 80 2,172 1,066 5,452 1 261 4,673 1,963	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital* Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital* Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospitalo Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute The Nemours Founda- tion* Delaware Hospital Memorial Hospital	Gen Ment O), Ne Gen Gen TB Mat Gen InstGe le of OrthCh Gen Gen Gen Gen Gen	NPAssn State w Custle Army NPAssn State State Indiv NPAssn n StateCo ii NPAssn NPAssn Of Wilmin Corp NPAssn Church NPAssn	60 1,247 46 104 160 40 20 100 111 85 347 347 510 10 10 10 10 10 10	37 1,193 8 46 134 33 8 54 75 70 1700 Generar 7 1255 67	10 9 10 18 8 8 6 43 35	204 127 43 260 60 63 634 63 332 1,228	1,367 327 367 1,455 129 45 80 2,172 1,066 120 5,452 1 261 4,673 1,963 4,388	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital*A- Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital*A Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute of The Nemours Founda- tiona Delaware Hospital*A Doris Memorial Hospital Memorial Hospital*A St. Francis Hospital*A Wilmington General Hospital*A Wilmington General Hospital*A Wilmington General Hospital*A Related Institutions Marshallton, 1,500—New Castle Sunnybrook Cottage Stockley, 68—Sussex	Gen Ment Gen Gen Gen TB Mat Gen InstGele OrthCh Gen Gen Gen Gen Gen Gen Gen	NPAssn State W Constle Army NPAssn State State Indiv NPAssn nStateCo il NPAssn NPAssn Corp NPAssn Church NPAssn	60 1,247 46 104 160 40 20 100 111 85 347 347 510 10 10 10 10 10 10	37 1,193 8 46 134 33 8 54 75 70 170 Generar 7 123 67	10 9 10 18 8 8 43 35 48	204 127 43 260 60 cospita 634 634 634 332 1,228	1,367 327 367 1,455 129 45 80 2,172 1,066 120 5,452 1 261 4,673 1,963 4,388	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital** Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital** Marshaliton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital* Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute of The Nemours Founda- tion* Delaware Hospital Memorial Hospital	Gen Ment O), Ne Gen Gen TB Mat Gen InstGe le Gen Gen Gen Gen Gen Gen Gen Gen Gen Ge	NPAssn State W Custle Army NPAssn State State Indiv NPAssn n StateCo ii NPAssn NPAssn Corp NPAssn Church NPAssn NPAssn StateCo	60 1,247 46 104 20 100 111 85 347 gton 15 210 105 170	\$7 1,198 8 46 134 33 8 54 75 70 170 Generic 7 128 67 117	10 9 10 18 8 8 43 35 48	204 127 43 260 60 63 634 63 332 1,228	1,367 327 367 1,455 129 45 80 2,172 1,066 120 5,452 1 261 4,673 1,963 4,388	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital*A- Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital*A Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute of The Nemours Founda- tiona Delaware Hospital*A Doris Memorial Hospital Memorial Hospital*A St. Francis Hospital*A Wilmington General Hospital*A Wilmington General Hospital*A Wilmington General Hospital*A Related Institutions Marshallton, 1,500—New Castle Sunnybrook Cottage Stockley, 68—Sussex	Gen Ment O), Ne Gen Gen TB Mat Gen InstGe le Gen Gen Gen Gen Gen Gen Gen Gen Gen Ge	NPAssn State W Constle Army NPAssn State State Indiv NPAssn n StateCo ii NPAssn NPAssn Corp NPAssn Church NPAssn State State	60 1,247 46 104 20 100 111 85 347 gton 15 210 105 170	\$7 1,198 8 46 134 33 8 54 75 70 170 Generic 7 128 67 117	10 9 10 18 8 53 31 HG 6 43 35 48	204	1,367 327 367 1,455 129 45 80 2,172 1,066 120 5,452 1 261 4,673 1,963 4,388	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital** Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital** Marshaliton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital* Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute of The Nemours Founda- tion* Delaware Hospital Memorial Hospital	Gen Ment O.), Ne Gen Gen TB Mat Gen InstGe le InstGen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State W Constle Army NPAssn State State Indiv NPAssn n StateCo ii NPAssn NPAssn Corp NPAssn Church NPAssn State State	60 1,247 46 104 20 100 111 853 347 gton 105 170 22 503	37 1,193 8 46 134 33 8 54 75 70 170 General 128 67 117 20 459	10 9 10 18 8 8 43 45 45	204	1,367 327 367 1,455 129 45 80 2,172 1,066 120 5,452 1 4,673 1,963 4,38S	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital** Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital** Marshaliton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Milford, 4,214—Sussex Milford Memorial Hospital* Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute of The Nemours Founda- tion* Delaware Hospital Memorial Hospital	Gen Ment O.), Ne Gen Gen TB Mat Gen InstGe le InstGen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State W Constle Army NPAssn State State Indiv NPAssn n StateCo ii NPAssn NPAssn Corp NPAssn Church NPAssn State State	60 1,247 46 104 20 100 111 85 347 gton 15 210 105 170	37 1,193 8 46 134 33 8 54 75 70 170 General 128 67 117 20 459	10 9 10 18 8 8 43 45 45	204	1,367 327 367 1,455 129 45 80 2,172 1,066 120 5,452 1 4,673 1,963 4,38S	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital* Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital* Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Miliord, 4,214—Sussex Miliord Memorial Hospitalo Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute The Nemours Founda- tion* Delaware Hospital* Delaware Hospital Gross Private Hospital Gross Private Hospital* Memorial Hospital* Mem	Gen Ment O.), Ne Gen Gen TB TB Mat Gen InstGe le of TGen Gen Gen Gen Gen Gen Gen Gen	NPAssn State W Custle Army NPAssn State State Indiv NPAssn n StateCo ii NPAssn NPAssn Corp NPAssn Church NPAssn NPAssn StateCo	60 1,247 46 104 20 100 111 853 347 gton 105 170 22 503	\$7 1,198 8 46 134 33 8 54 75 70 170 Generic 7 128 67 117	10 9 10 18 8 8 43 45 45	204 127 43 260 60 cospita 634 634 634 332 1,228	1,367 327 367 1,455 129 45 80 2,172 1,066 120 5,452 1 261 4,673 1,963 4,388	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital* Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital* Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middetown, 1,529—New Castle Maternity Home Milord, 4,214—Sussex Milford Memorial Hospital Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute The Nemours Founda- tion* Delaware Hospital Memorial Hospital Gross Private Hospital Memorial Hospital* Memorial Hospital* St. Francis Hospital* Memorial Hospital* Memorial Hospital* St. Francis Hospital* Minington General Hospital* Mospital* Marshallton, 1,500—New Castle Sunnybrook Cottage Stockley, 68—Sussex Delaware Colony DISTRIC* Washington, 603,091 Central Dispensary and Emgency Hospital*	Gen Ment O.), Ne Gen Gen TB TB Mat Gen InstGe le of TGen Gen Gen Gen Gen Gen Gen Gen	NPAssn State W Constle Army NPAssn State State Indiv NPAssn n StateCo ii NPAssn NPAssn Corp NPAssn Church NPAssn State State	60 1,247 46 104 20 100 111 853 347 gton 170 22 503 JUM 280	37 1,193 8 46 134 33 8 54 75 70 170 General 128 67 117 20 459	10 9 10 18 8 43 35 48	204	1,367 327 367 1,455 129 45 80 2,172 1,066 120 5,452 1 4,673 1,963 4,38S	Hospitals and Sanatoriums
Dover, 5,517—Kent Kent General Hospital* Farnhurst, 500—New Castle Delaware State Hospital* Fort Dupont (Delaware City P Station Hospital Lewes, 2,246—Sussex Beebe Hospital* Marshallton, 1,500—New Castle Brandywine Sanatorium Edgewood Sanatorium Middletown, 1,529—New Castle Maternity Home Miliord, 4,214—Sussex Miliord Memorial Hospitalo Smyrna, 1,570—Kent Delaware State Welfare Home Hospital Wilmington, 112,504—New Cast Alfred I. duPont Institute The Nemours Founda- tion* Delaware Hospital* Delaware Hospital Gross Private Hospital Gross Private Hospital* Memorial Hospital* Mem	Gen Ment O), Ne Gen Gen Gen TB Mat Gen InstGe Gen Gen Gen Gen Gen Gen Gen Gen Gen G	NPAssn State W Custle Army NPAssn State State State Indiv NPAssn NPAssn NPAssn Corp NPAssn Church NPAssn State Corp NPAssn State Corp NPAssn Church NPAssn State COI	60 1,247 46 104 100 20 100 111 85 347 gtom 15 210 105 170 22 503 .UM	\$7 1,198	10 9 10 18 8 10 18 43 35 48	204	1,367 327 367 1,453 129 45 80 2,172 1,066 120 5,452 1,963 4,283 14 31	Hospitals and Sanatoriums

FLORIDA-Continued

FLOR	IDA~	-Contin	ued				
		Ownership or Control			αĝ	o	
the state of the s	of ice	ersk		nge us t	inets	ber 18	<u></u>
Hospitals and Sanatoriums	Type of Service	r C	Beds	Average Census †	Bassi	Number of Births	Admis- sions †
TT ST 4 W 4	TB	NPAssn	21	40 A0		Z A	< ≅ 26
•	TB N&M	CZCo	50	50	••	• • • •	126
Riverside Hospital+40	Gen	Indiv NPAssn	8 50	3 32	10	129	
St. Luke's Hospital*40. St. Vincent's Hospital*40. Key West, 12,927—Monroe U. S. Marine Hospital*4. Klesiman 2,925 Occale	Gen Gen	NPAssn Church	182 220	132 221	25 50	1,214 1,307	5,921 7,295
V. S. Marine Hospital	Gen	USPHS	65	48		1	
Kissimmee, 3,225—Osceola Osceola Hospital					••		
Lake City, 5,836—Columbia		Indiv	40	17	5	52	1,046
Lake Shore Hospital Veterans Admin. Facility.	Gen	City Vet	<i>35</i> 353	10 288	<i>G</i>	127	910 2,316
Lakeland, 22,068—Polk Morrell Memorial Hospital.	Con					•••	
Dake wates, 5,024-Polk		City	84	41	16	305	1,665
Lake Wales Hospital Leesburg, 4,687—Lake	Gen	NPAssn	25	6	7	55	338
Theresa Holland Hospital Manatee, 3,595—Manatee	Gen	Indiv	40	16	4	58	616
Manatee County Hospital.	GenTb	County	65	2	8	170	700
Manatee County Hospital. Riverside Hospital Marianna, 5,079—Jackson	Gen	muly	20	11	3	49	497
Doctor's Hospital	Gen	Part	16	5	4	30	315
Breyard Hospital Miami, 172,172—Dade	Gen	City	25	10•	5	56	369
Christian Hospital	Gen	NPAssn	40	10	G	132	464
Dade County Hospital	TB	County	127 54	88 27	20	544	3,121 121
James M. Jackson Memorial Hospital*+40	Gen	City	426	342	50	1.705	14,478
	TB	City NPAssn	49 85	42 58	••	•••	193 453
Miami Retreat Miami Riverside Hospital National Children's Cardiac	Gen	Indiv	44	20	iö	200	670
Home C	hilCard		24	24			24
Sun-Ray Park Health Resort Victoria Hospital		Corp Indiv	75 75	20 44	22	561	309 2,205
Miami Beach, 28,012—Dade Miami Beach Hospital		Corp	55	20	6	22	1,021
St. Francis Hospital	Gen	Church	150	89	12	331	3,338
Miami Springs, 898—Dade Miami-Battle Creek Sani-							
tarium Ocala, 8,986—Marion	Gen	NPAssn	105	22	••	• • •	333
Munroe Memorial Hospital	Gen	CyCo	85	30	10	182	1,288
Orlando, 36,736—Orange Florida Sanitarium and	_						
Hospitalo	Gen	Church	130	70	10	208	2,255
Sanatorium Orange General Hospital.	TB Gen	State NPAssn	400 170	388 118	22	409	306 4,041
Palatka, 7,140—Putnam							j
Glendale Hospital Mary Lawson Sanatorium	Gen	Indiv Indiv	20 50	9 15	4 6	86 69	597 244
Panama City, 11,610—Bay Lisenby Hospital	Gen	Indiv	25	10	G	90	570
Panama City Hospital Pensacola, 37,449—Escambia	Gen	NPAssn	13	5	5	109	473
Escambia County Taberculos.	is	СуСо	GG	4S			
	TD.	Church	165	104	$\frac{1}{25}$	731	76 4,635
Quincy, 3,888—Gadsden	Gen	Navy	142	95	••	• • • •	1,252
Gadsden County Hospital	Gen	NPAssn	35	12	4	67	645
St. Augustine, 12,090—St. Johns Enst Const Hospital	Gen	NPAssn	55 66	44 29	5 8	122 154	1,397 928
Flagler Hospital	Gen	NPAssn	66	29	0	19±	923
American Legion Hospital for Crippled Children	Orth	NPAssn	35	21			203
Ortopien Condien	Gen Gen	City City	46 192	20	16	14 407	908 5,794
	Gen	Church St. Anth	100	45	15	153	1,765
Si	Cint o	bu anu	ion, s				{
Hospital	Gen	NPAssn	22	10	6	92	60G
Sarasota, 11,141—Sarasota Joseph Halton Hospital		Indiv	20	10	5	14	620
Sarasota Hospital	Gen	City	50	20	10	177	1,233
ital	Gen	Indiv	30 16	10 7	7	28 97	426 620
Stuart, 2,438-Martin		Indiv					į
Martin County Hospital Tallahassee, 16,240—Leon	Gen	NPAssn	29	12	8	34	405
Johnston's Samtanda	Gen	Indly	31	20	7	206	851
Tampa, 108,391—Hillsborough Centro Asturiano Hospital.	Gen	NPAssn	65	39	S	170	1,049
Clara Frye Tampa Municipal		City	72	34	8	154	2,499
Hillsborough County Home	nstGen	County	248	207	9	427	2,445
St. Joseph's Hospital Tampa Municipal Hospital	Gen	Church City	63 259		15 29	398 920	2,138 7,434
Timatilla 1 149—1.866			,				
Harry-Anna Crippled Can-	Orth	NPAssn	75	11	••	•••	153
Vero Beach, 3,050—Indian River Indian River Hospital		Indiv	21	G	5	42	343
			Key	to sy	mbo	Is an	d abbrev

FLORIDA-Continued

FLC	RID	AC	ontin	ueđ				
Hospitals and Sanatorium	Type of	Service	r Control	Beds	Average	cusus t	Bassinets Number of	Births Admis-
West Palm Beach, 33,693—Pa Good Samaritan Hospita Pine Ridge Hospital St. Mary's Hospital	lm Ber	ich n NI	Assn Assn	117 35	:	7G 1 25	15 3 4	36 2,93 36 79
Winter Haven, 6,199-Polk Winter Haven Hospital			urch 'Assn	100 25				271 1,42 92 730
Related Institutions Daytona Beach, 22,584—Volum							•	10
Fort Lauderdale, 17,006—Bro	n Ger			10		4	2	9 110
Provident Hospital Gaincsville, 13,757—Alnchua Florida Farm Colony			Assn	22				69 297 31
Dr. Miller's Sanitarium				577 20	50	5.		250
Pinellas County Home			unty	110	9	7.		183
Raiford, 472—Union	Ger		liv	35		6	8	96 203
Florida State Farm Hosp St. Petersburg, 60,812—Pinelli	15			85	G		• •	•
Earle Restorium Florence Crittenton Home Tallahassee, 16,240—Leon Florida Agricultural and	e Mai	t NP.	Assn	40 28	2		8	. 142 46 65
Mechancial College Hosp. West Palm Beach, 33,693—Pal Palm Beach County Tuber culosis Sanatorium for	m Bea	Jen Sta ch	te	43	3.	3 5	2 1	16 933
Negroes	ТВ	NPA	Assn	12	9		•••	. 45
	GEC	RGI	A					
	jo ej	rship			1, ge	nets	oer of	n <u>é</u> n.+-
Hospitals and Sanatoriums	Type o	Ownershii or Contro		Beds	Average	Bassinets	Number of	Adm
Albany, 19,055—Dougherty Phoebe Putney Memorial Hospital		NPA	ssn	56	38		28	
Alto, 217—Habersham State Tuberculosis Sana-		Stat		305	410			. 797
Americus, 9,281—Sumter Americus and Sumter County Hospital								
Athens, 20,650—Clarke		NPA Com		35 80	19 39	5 10	110	1.634
Athens General Hospital. St. Mary's Hospital Atlanta, 302,288—Fulton Albert Steiner Clinic for Can	Gen	Chui		68	45	10	179	1,633
and Allied Diseases+4 Battle Hill Sanatorium Blackman Sanatorium	Cano TB Gen	er City City Indiv	2	30 56 25	29 246 15	:: ::		510
Crawford W. Long Memoria Hospital** Georgia Baptist Hospital** Grady Hospital**	. Gen ◊ Gen	NPA Chur City	ch 1	05 64 18	196 160 486	45 30 78	797	10,015 6,303 21,797
Grady Hospital*+** Grady Hospital, Emory Un versity Division Henrietta Egleston Hospita	. Unit	-	dy Ho	spita	1			
for Children+AO Jesse Parker Williams Hosp Joseph B. Whitehead Me-	. Chil . Gen	NPA: NPA:		14 30	36	<i>::</i>	Estal	
morial Hospital	, Gen	State	sn I		11 115	iż	497	622 4,031
	. ENT . Gen 4 Inst	Indiv Churc USPI	ch 13	18	i26 74	22	685	4,710 2,732 3,495
Throat infilmary St. Joseph Infilmary*+40. U. S. Penitentiary Hospital Veterans Admin. Facility* William A. Harris Memorial Hospital	. Gen	Vet Indiv	31 2	_	294 13	2	14	660
Augusta, 65,919—Richmond	Gen	City	30	0	250		1,220	10,205 653
Veterans Admin. Facility Bainbridge, 6,352—Decatur Bainbridge Hospital	, Ment	Vet Indiv	1,06		9 9	4	G)	६३१ ६७३
Riverside Hospital Barwick, 409—Brooks	Gen	Part	2.	5	12 3	6 2	93 25	100
Sanchez Private Sanitarium Brunswick, 15,035—Glynn Brunswick City Hospital		Indiv City	1. 69			10	222	1,211
Butler, 1,093—Taylor Montgomery Hospital		Indiv	18	3	4	2	49	296 527
Cairo, 4,653—Grady Cairo Hospital Calboun, 2,955—Gordon	Gen	Indiv	27		10 7	4 2	61 149	521 500
Camoun, 2007 Hacaital		Indiv Corp	25 35				a supl	oliel
	Gen	Indiv	12		3	4	56 43	122 217 100
		Indiv	10	_	2 73 0	š n	27 591 (ترين 100
is an nade 1071	Gen	City	250	1	٠, ٠	•		

GEORG			ned					GEORGIA—Continued	
Hospitals and Sanatorrums	Type of Service	Ownership or Control	ds	Average Census †	Bassinets	Number of Births	Admis sions †	summing summin	
Cuthbert, 3,447—Randolph			. Beds				모음 7.8	Statesboro, 5.028—Bulloch	
Dalton, 10,448—Whitfield Hamilton Memorial Hospital		Indiv NPAssn	40 38	17 20	4 6	55 300	1,480	Van Buren's Sanitarium Gen Indiv 25 15 5 20 200 Swainsboro, 3,575—Emanuel	0
Decatur, 16 561—De Kalb Scottish Rite Hospital for Crippled Children▲	Orth	NP 1een	60	59			315	Franklmi Hospital Gen Indiv 20 6 2 34 57 Thomasville, 12,683—I homas John D Archbold Memorial	
Donalsonville, 1,718—Seminole Donalsonville Hospital		Part	30	12	6	174	830	Hospital Gen NP 1sen 110 89 12 167 3,027 Trifton, 5,228—Trift	
Douglas, 5,175—Coffee Douglas Hospital Dublin, 7,814—Laurens	Gen	City	32	10	3	108	826	Tift County Hospital Gen County 32 12 7 59 606 Toccoa, 5,493—Stephens Stephens County Hospital Gen County 25 13 6 251 1,282	
Clayton Sanitarium		Corp Indis	55 40	26 25	5 4	116 116	1,245 998	Stephens County Hospital Gen County 25 13 6 251 1,282 Trion, 3,800—Chattooga Riegel Hospital Gen Indiv 40 21 5 303 1,400	
Hicks Hospital Thompson Sanatorium	Gen	Indiv Indiv	25 14	8 7	$\frac{2}{3}$	ւ 20	501 მზა	Valdosta, 15,595—Lowndes 1 rank Bird Hospital Gen India 22 9 3 51 465	
Eastman, 3,311—Dodge Clinic Hospital		Indiv	14	5	2	28	116	Little Griffith Owens Saunders Hospital Gen NP4ssn 54 21 5 197 2,250	
Flberton, 6 188—Flbert		Indiv C3 Co	.9 10	9	4	14 45	611 295	Ndaha, 4,10)—Toombs Bething Home Hospital Inst Church 32 No data supplied	
Thompson Johnson Hospital Finory University, 2:0—De Kulb	Gen	Corp	10	1	1	6,	452	City Hospital Gen Indiv 14 1 3 31 240 Warm Springs, 605—Meriwether Georgia Warm Springs	ļ
Emory University Hosp *+AO Fort Benning, —Chattahoochee		NP 1een	233		37		6 764	Foundation Orth NP is 110 89 . 378 Washington, 3,537—Wilkes	;
Station Hospital I ort McPherson (Atlanta P 0).			o64	476			12 855	Washington General Hosp Gen City 36 21 8 157 1,2-9 Waycross, 16,763—Ware)
Station Hospital	Gen	Army	247	140 164	4 5		3,901 2,100	Atlantic Coast Line Hosp Andus APAssn 75 39 1,703 Ware County Hospital Gen County 72 34 8 377 2,852	
Station Hospital▲ 1 ort Screven, —Chatham Station Hospital	Gen Gen	Army	271 ა0	36	1	12	912	West Point, 3.99—Troup Valley Hospital Gen NPAssn 27 20 4 96 741	
Gainesville, 10,243—Hall Downey Hospital	Gen	Corp	52	31	6		1,708	Related Institutions	
Hall County Memorial Hosp Griffin, 13,222—Spalding		County	J 2	15	4	60	656	Atlanta, 302,288—Fulton Dwelles Infirmary Gen Indiv 15 5 2 16 191 Florence Critenton Home Wat APAssn 26 24 10 44 46	
R F Strickland and Son Vernorial Hospital	e Gen	Indix	45	27	5	111	1,278	Florence Crittenton Home Vat NP4ssn 26 24 10 44 46 Georgia Sanitarium Gen Indiv 5 2 2 8 79 Our Lady of Perpetual Help	
Hawkinsville, 3,000—Pulaski R J Taylor Memorial Hosp	Gen	NP \een	43	10	5	33	440	Free Cancer Home Cancer Church SO 35 . 151 Social Disease Hospital Ven City 40 17 . 492	
Homerville, 1,52?—Clinch Huey Hospital Hoschton, 364—Jackson	Gen	Indiv	14	10	2	37	1,122	Columbus, 53 280—Muscogee Muscogee County Tuberculo	
Allen Chnic and Hospital Jasper, 576-Pickens	Gen	Part	14	7	2	36	369	sis Hospital TB County 48 22 48 Cordele, 7,929—Crisp	
Roper Hospital Jesup, 2,903—Wayne	Gen	Indiv	9	6	3	67	322	Gillespie Hospital Gen Church 25 9 4 16 296 Gracewood, 500—Richmond	i
Colvin Ritch Hospital La Grange, 21,983—Troup	Gen	Part	27	14	5	167	863	Georgia Training School for Mental Defectives MeDe State 460 396 175 Lyons, 1,900—Toombs	,
City County Hospital	Gen	C3 Co	62	34	6		1,573	Atken Hospital Gen Indiv 8 5 3 20 204 Summerville, 1,338—Chattooga	t
Clinic Hospital Macon Hospital* Middle Georgia Hospital	Gen Gen Gen	Corp C3 Co Corp	26 204 50	20 1 6 34	4 40 13	813 280	1 280 6,101 2,082	Summerville Trion Hospital Gen Corp 20 6 5 . 450)
Oglethorpe Private Infirm ary≜≎	Gen	Corp	36	24	4	89	1,149	IDAHO	
St Luke Hospital Marietta, 8,667—Cobb	Gen	NPAssn	30	10	5	25	210	rol	
Marietta Hospital Metter, 1,823—Candler Kennedy Memorial Hospital	Gen	Corp	26	14	6	110	882	Hearing the string of Service Ownership or Control Beds Control Bussinets Number of Biths Admis Signs 4	
Milledgeville, 6,778—Baldwin Allen's Invalid Home	NAM	Part Indiv	25 150	12 98	3	24	554 431)
Baldwin Memorial Hospital ⁴ Milledgeville State Hospital ⁵	Gen Ment	Indiv State	70 8,000	$\frac{24}{7,779}$	15		$\frac{1,120}{1,741}$	American Falls, 1,439—Power Schiltz Memorial Hospital Gen County 25 12 8 111 721	!
Scott Hospital Millen, 2,820—Jenkins Millen, Hospital	Gen	Indiv	25	20	4	25 07	396	Blackfoot, 3,681—Bingham State Hospital, SouthO Vent State 6,0 617 . 212 Borse, 26,130— \da	:
Millen Hospital Mulkey Hospital Monroe, 4,168—Walton	Gen Gen	Indiv Indiv	22 20	8 7	4 5	27 42	514 462	St Alphonsus Hospital Gen Church 148 119 20 384 2,660 St Luke's Hospital Gen Church 115 97 20 .63 5.357	
Walton County Hospital Montezuma, 2,346—Macon	Gen	C2 Co	17	5	4	31	332	Veterans Admin Facility Gen Vet 174 134 . 1,218 Bonners Ferry, 1,345—Boundary	
Macon County Chnic Riverside Sanatorium Voultrie, 10,147—Colquitt	Gen Gen	Part Indiv	20 16	6 8	4 6	36 61	400 443	Bonners Ferry Hospital Gen Corp 25 8 8 96 286 Burley 5,329—Cassia Cottage Hospital Gen Corp 17 11 4 88 693	
Vereen Memorial Hospital	Gen	NPAssn	ა0	17	6	91	1,012	Caldwell, 7,273—Canyon	
Nashville 2,449—Berrien Askew Memorial Hospital Ocilla, 2,124—Irwin	Gen	Indiv	11	4	3	82	27.	Caldwell Sanitarium Gen Part 22 8 8 92 461 Coeur d'Alene, 10,649—Kootenai Coeur d'Alene, Hospital Gen NPAssn 25 9 1 4 60	
Ocilla Hospital Quitman, 4,450—Brooks	Gen	Part	20	8	5	1.0	612	Cottonwood, 673—Idaho Our Lady of Consolation	
Brooks County Hospital Reidsville, 80.—Tattnall	Gen	C3 Co	32	11	4	74	629	Hospital . Gen Church 32 19 5 62 554 Fort Hall, 100—Bingham	
Jelks Hospital Rome, 26,282—Floyd Harbin Hospital	Gen Gen	Indiv Corp	13 60	8 38	2 12	25 240	386 2 999	Fort Hall Indian Agency Hospital Gen IA 16 12 4 50 3-7 Gooding, 2,565—Gooding	,
McCall Hospital▲ Royston, 1,549—Franklin	Gen	Corp	73	46	12	571		Gooding, 2,505—Gooding Gooding County Hospital Gen NPAssn 16 8 8 117 519 Grangeville, 1,929—Idaho	ı
Brown s Hospital	Gen	Indiv	20	10	2		360	General Hospital Gen Corp 20 G G 34 88 Halley, 1,443—Blaine	,
Central of Georgia Railway	Gen	NP4sen	6S	30	7	97	1,215	Hailey Chnical Hospital Gen Indiv 20 13 6 54 625 Idaho Falls, 15 024—Bonneville Lidaho Falls, Latter Day	
Hospital	Indus Gen	NP teen NP 4een	68 65	47 60	14	*20	2,265 2 841	Idaho Falls Latter Day Saints' Hospital₄o Gen Church 100 84 39 829 3,713 Kellogg, 4,235—Shoshone	
Charity Hospital Georgia Infirmary Oglethorpe Sanatorium	Gen Gen	NP 4 cen Indiv	60 30	71 35	11 S	353 123	2,758 1,798	Wardner Hospital Gen Part 35 26 7 154 1,3-2 Lapwal, 476—Nez Perce	
St Joseph Hospital▲◇ Leliair Hospital L S Marine Hospital▲	Gen Gen	Church NP \cen USPHS		83 63	15 20	549	2 877 2,673	Fort Lapwai Sanatorium TB 1 145 111 176 Leuiston, 10 045—1cz Perce	
Warren A Candler Hospo	Gen Gen	Church	150 86	157 71	14	.69 ₀	1,461 2,744	St. Joseph's HospitalAo Gen Church 135 So. 20 375 2,101 White Hospital Gen NP \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
Dr Brawner . Sanitarium	N % N	Indiv	40	30	•		460	Oneida Hospital Gen County 20 9 7 114 409	

IDAHO	-Contin	ued					ILLINOIS—Continued
	zio Tol		6 3 4 -	s	of		
Hospitals and Sanatoriums	Service Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admis- sions t	Hospitals and Sanatoriums Ownership Or Control Beds Average Consus † Mumber of M
Moscow, 6,014—Latah Gritman Memorial Hospital. Ge				12	199		Cairo, 14,407—Alexander Alexander County Tubercu-
University of Idaho In- firmary In:		30	13			817	losis Sanatorium TB County 100 70
Nampa, 12,149—Canyon Mercy Hospital▲○ Ge	Church	75	43	15	294	1,621	Graham Hospitalo Gen NPAssn 65 58 20 463 2811
Nazarene Missionary Sani- tarium and Institute (Samaritan Hospital Di-							Holden Hospital Gen Church 78 30 12 128 1200
vision) • Ge Orofino, 1,602—Clearwater	Church	50	25	6	101	944	Macoupin Hospital Gen Indiv 26 21 6 125 602
Orofino Hospital Ge State Hospital, North Me	Part it State	38 429	21 389	4	71	600 106	Centralia, 16,343—Marion St. Mury's Hospital
Pocatello, 18,133—Bannock Pocatello General Hospital▲○ Ge	CyCo	75		16	394	2,182	Burnham City Hospital Gen City 136 80 24 525 3,370 Charleston, 8,197—Coles
St. Anthony Mercy Hosp. A Ge Potlatch, 800—Latah Potlatch Hospital Ge		100 20	37 7		369	•	M. A. Montgomery Memorial Sanitarium
Preston, 4,236—Franklin					44		Chester, 5,110—Randolph
General Memorial Hospital Ge Rexburg, 3,437—Madison			13		161	464	Chicago, 3,396,808—Cook
Harlo B. Rigby Hospital Ge Rupert, 3,167—Minidoka		14	8	6	76	490	Albert Merritt Billings Hosp., Unit of University of Chicago Clinics Alexian Brothers Hosp. **AO. Gen. Church 973 918 487
Rupert General Hospital Ge St. Maries, 2,234—Benewah		15	6	3	49	328	American Hospital**40 Gen NPAssn 175 89 19 309 4,003 Augustana Hospital**40 Gen Church 275 192 25 672 6,132
St. Maries Hospital Ge Sandpoint, 4,356—Bonner		25	12	3	37	421	Belmont Community Hosp.* Gen NPAssn 100 61 25 505 2,889 Bethany Home Hospital Gen Church 25 13 319
Community Hospital Ge Graham Hospital Ge	NPAssr Indiv	1 25 15	14 8	6 4	60 103	170 365	Bethany Sanitarium and Hospital Gen Church 51 32 23 322 1,607
Soda Springs, 1,087—Carlbou Caribou County Hospital Ge Twin Falls, 11,851—Twin Falls	County	36	17	7	49	950	Bobs Roberts Memorial Hos- pital for Children Unit of University of Chicago Clinics
Twin Falls County General Hospital	County	. 85	87	28	673	3,065	Burrows Hospital Gen Indiv 40 9 6 59 325 Chicago Eye, Ear, Nose and
Wallace, 3,839—Shoshone Providence Hospital▲ Ge	_			12		1,186	Throat Hospital ENT Corp 45 11 712 Chicago Fresh Air Hospital TB NPAssn 39 21 133
Wallace Hospital Ge Wendell, 1,001—Gooding		40		o dat		pplied	Chicago Lying-in Hospital of the University of Chi- cago+40
St. Valentine's Hospital Ge	Church	25	15	9	102	615	Chicago Memorial Hosp.** Gen NPAssn 88 05 20 324 2,649 Chicago State Hospital* Ment State 4,472 4,562 1,473
Related Institutions Boise, 26,130—Ada							Children's Memorial Hos- pital+▲○
Salvation Army Women's Home and Hospital Ma Nampa, 12,149—Canyon	Church	21	19	17	198	243	City of Chicago Municipal Tuber-
State School and Colony Me Priest River, 1,056—Bonner	De State	592	555	••	•••	41	culosis Sanitarium+40 TB City 1,210 1,192 2,074 Columbus Hospital*40 Gen Church 152 119 18 487 4,537 Cook County Children's Hos-
Priest River Hospital Ge	Indiv	10	3	2	11	89	pital
ILI	INOIS						Hospital Unit of Cook County Hospital Edgewater Hospital*4 Gen NPAssn 135 123 30 755 5,447
•	hip troi		e) +-	sts	r of		Evangelical Hospital** Gen Church 180 185 60 1,998 8,125
Hospitals and Sanatoriums of E	Ownership or Control	S	Average Census †	Bassinets	Number of Births	Admis- sions †	Franklin Boulevard Hosp. Gen Corp 60 42 16 34 250 Garfield Park Community
	6	Beds	Ç.	Ba	ää	Ad	Grant Hospital*+A0 Gen NPAssn 232 191 45 1,021 6,840
Aledo, 2,593—Mercer Stites-Conway Hospital Ge	Part	14	6	4	91	432	Holy Cross Hospital*4 Gen Church 125 101 36 1,090 4,623
Alton, 31,255—Madison Alton Memorial Hospital*. Ge	Church at State	90 1.822	95 1.720	15	636	3,531 623	Children
Alton State Hospital Me St. Anthony's Infirmary and Sanitarium			60			1,350	Illinois Central Hospital*A Gen NPAssn 250 168 40 850 3,000
St. Joseph's Hospital** Ge Amboy, 1,986—Lee	Church		112	25	543	4,687	Illinois Eye and Ear In- firmary+A
Amboy Public Hospital Ge Anna, 4,092—Union	NPAssr		10	4	55	250	illinois Neuropsychiatric In- stitute+
Anna State Hospital Me Hale-Willard Memorial Hosp. Ge	t State City	2,324 16	2,225 9	4	70	837 348	Illinois Surgical Institute for
Aurora, 47,170—Kane Copley Hospital • Ge		100	101	20	499	3,803	Children
Kane County Springbrook	County		81 145			70 284	La Rabida Jackson Park Sanitarium CardChil NPAssn 60 59 104
Mercyville Sanitarium No St. Charles Hospital Ge	Church	120	90 130	25	451	2,890 3,551	Lewis Memorial Maternity Hospital Loretto Hospital Gen Church 117 57 117 1,833 2,172 Loretto Hospital Gen Church 115 89 27 776 3,825
St. Joseph Mercy Hospital Ge Avon, 803—Fulton				4	73	170	Lutheran Deaconess Home and Hospital*A0
Saunders Hospital Ge Batavia, 5,101—Kane Bellevue Place Sanitarium No		40	27			17	Martha Washington Hosp den 1917 1880 19 19 19 19 19 19 19 19 19 19 19 19 19
	111 21201				587	78 2,871	versity Clinics*+A0 Gen Church 303 465 71 1,947 15,511 Michael Reese Hospital*+A0. Gen NPAssn 502 465 71 1,947 15,511
Belvidere, 8,094—Boone		106	85 19		139	776	Home for Infants A Mat Church 57 8 18 33
Highland Hospital Ge St. Joseph's Hospital Ge	NPAssu Church		17	9	138	796	Hospital***
Benton, 7,372—Franklin Moore Hospital		25		1	37	593	Municipal Contagious Disease Hospital Ao Hospital Gen NPAssn 50 20 14 200 1,689
Berwyn, 48,451—Cook Berwyn Hospital	NPAsso		70 ce			3,660 2,185	North Chicago Hospitan Hospita
Mennonite Hospitalo Ge		65 203	$^{62}_{140}$	22	499	3,820	orthopaedic Institute
Blue Island, 16,638—Cook St. Francis Hospital+4 Ge	Church	S 5	ឲ្			2,925	pital*+*
Breese, 2,206—Clinton St. Joseph Hospital Ge Bushnell, 2,906—McDonough		40	21	9	190	763 56	Gen Church 378 327 31 676 3.53
Elmgrove Sanatorium TE	County	SG Ke		 ymbol	 Is an		viations is on page 1071
		•••	.,	,			

ILLIN	ois-	-Contin	ued				ı
		Ownership or Control			£	1 0	Į
	ខ្លួ	ont	_	Average Census †	Bassinets	Number Births	iş+
Hospitals and Sanatoriums	Type	L C	Beds	ons,	Sass	Fire and a second	Admis
Ravenswood Hospital***	Gen	NPAssn	д 153	133		1,215	5,652
Research and Educational		State	433	363	34	577	5,694
Hospitals*+▲ Roseland Community Hos-							
pital** St. Anne's Hospital**	Gen Gen	NPAssn Church	101 300	79 217	28 60	697 1,947	3,819 8,009
St. Anthony de Padua Hosp	See H	ospital of	St. Aı	thon	y de 42		
St. Bernard's Hospital*** St. Elizabeth Hospital**		Church Church	$\frac{200}{241}$	133 240	66	1,557	8,866
St. George Hospital St. Joseph Hospital*+**		Church Church	100 225	$\frac{42}{145}$	40	931	2,124 4,921
St. Luke's Hospital*+40	Gen	NPAssn	481	383	55	1,067	
St. Mary of Nazareth Hospital**	Gen	Church	264	217	60	1,829	8,864
St. Vincent's Infant and			290	181	20	378	910
Maternity Hospital+4⊙ Sarah Morris Hospital for							020
Children	Unit	of Michael	Rees	e Hos	pita	ı	
pled Children+▲	Orth	NPAssn	60	60	••	•••	231
South Chicago Community Hospital	Gen	NPAssn	86	44	17	518	4,351
South Shore Hospital**	Gen	Corp NPAssn	125 20	55 12	25	612	3,007 165
Streeter Community Hosp Swedish Covenant Hosp.**	Gen	Church	171	133	54	1,437	5,475
U. S. Marine Hospital**	. Gen	USPHS	301	198	21	348	2,750
University Hospital*▲• University of Chicago	Gen	NPAssn	100	78	21	343	4,075
Clinics*+▲	Gen	NPAssn Church	526 160	374 115	134 36	3,034 789	11,554 5,767
Washington Boulevard Hos-	Gen						
pital*▲○		NPAssn Church	100 550	$\frac{63}{250}$	8 35	149 319	2.287 3,811
Women and Children's Hos-		NPAssn	89	55	32	659	2,341
pital*▲◇ Woodlawn Hospital*▲	. Gen	NPAssn	125	85	20	421	4,031
Chicago Heights, 22,461—Cook St. James Hospital	. Gen	Church	100	72	20	566	3,825
Clinton, 6,331—De Witt Dr. John Warner Hospital.	_	City	28	18	4	151	866
Danville, 36,919—Vermilion		NPAssn		108	24	374	3,461
Lake View Hospitalo St. Elizabeth Hospitalo	. Gen	Church	146 165	118	30	651	3,662
Vermilion County Tuberculo Dispensary and Hospital.	sis . TB	County	55	44			111
Veterans Admin. Facility.	. Ment		1,868	1,688	••	•••	605
Decatur, 59,305—Macon Decatur and Macon County		2771	7.10	115	0.5	2 21	9.059
Hospital AO Macon County Tuberculosis Sanatorium +	. Gen	NPAssn	140	117	25	721	3,952
		County Church	80 180	63 186	25	487	117 5,737
Wabash Employes' Hospital De Kalb, 9,146—De Kalb	▲ Indus	NPAssa	75	44	••	•••	1,153
De Kalb County Tuberculos	is	Country	90	22			49
Sanatorium De Kalb Public Hospital St. Mary's Hospital	. Gen	County City	33 40	26	9	189	878
St. Mary's Hospital Des Plaines, 9,518—Cook	. Gen	Church	45	26	8	117	959
Northwestern Hospital	. Gen	NPAssn	14	6	5	76	263
Dixon, 10.671—Lee Dixon Public Hospital	. Gen	NPAssn	60	43	17	428	1,588
Downey, -Lake Veterans Admin. Facility.	. Ment	Vet	1,475	1,457			423
Dunning, —Cook Chicago State Hospital	. See C			-			
Du Quoin, 7,615—Perry Marshall Browning Hospita	1 Gan	NPAssn	47	27	9	190	963
Dwight, 2,499—Livingston							
Veterans Admin. Facility. East Moline, 12,359—Rock Islan	. Gen	Vet	218	190	••	•••	1,532
East Moline State Hospita East St. Louis, 75,609—St. Clai	ıl Ment r	State	2,226	2,151	••	•••	794
Christian Welfare Hosp. Ao. St. Mary's Hospital*Ao	. Gen	NPAssn	$\frac{126}{232}$	66 145	24 36	546 • 747	2,412
Edwardsville, 8,008—Madison	. Gen	Church	202	145	50	. 111	4,310
Madison County Sana- torium	, TB	County	99	84			80
Effingham, 6,180—Effingham St. Anthony's Hospital		Church	91	73	15	276	1,424
Eldorado, 4,891—Saline Ferrell Hospital		Indiv	12	6	3	33	262
Elgin, 38,333—Kane Elgin State Hospital+			4,932	4,964		•••	1,962
Resthaven Sanitarium St. Joseph Hospitalo	. N&M	Indiv	85	70	20		202
Sherman Hospital	. Gen	Church NPAssn	104 125	59 101		340 554	2,276 3,586
Elmhurst, 15,458—Du Page Elmhurst Community Hosp Evanston, 65,389—Cook	p. Gen	NPAssn	90	86	20	537	3,134
Evanston, 65,389—Cook Evanston Community Host	p, Gen	NPAssn	30	10	5	21	347
Evanston Community Hosp Evanston Hospital*+40 St. Francis Hospital*+40.	Gen	NPAssn Church		182 159	35 50	1,022 1,210	8,145 7,083
Evergreen Park, \$,313—Cook Little Company of Mary					-•	,	.,
HOSDITAL*TAV	Gen	Church	175	160	68	1,810	7,384
Fairbury, 2,300—Livingston Fairbury Hospital	Gen	NPAssn	11	8	5	125	465
Fort Sheridan, 2,600—Lake Station Hospital	Gen	Army	160	149	6	27	3,260

u	ed				i	ILLINOIS—Continued												
		ge s t	1ct8	er of	is-	of se rship introl	1ge	nets	Number of Births	<u></u> +								
	Beds	Average Census †	Bassinets	Number Births	Adm		Average Census †	Bassinets	Num Birth	Admis- sions †								
	53	133	50	1,215	5,652		5 53 2 65	18 16	391 299	2,091 2,326								
	433 101	363 79	34 28	577 697	5,694 3,819	Galesburg, 28,876—Knox	2 62 0 79	22 15	402 323	2,233 2,382								
	300 t. Ar			1,947 Padu		Geneseo, 3,824—Henry J. C. Hammond City Hosp & Gen. City	3 13		172	732								
	200 241	133 240	42 66	880 1,557	6,90 1 8,866	Geneva, 4,101—Kane Community Hospital Gen NPAssn 7	0 51		205	1,703								
	100 225	$\frac{42}{145}$	40		2,124 4,921	Geneva, 4,101—Kane Community Hospital Granite City, 22,374—Madison St. Elizabeth Hospital	4 75	16	576	3,130								
	181	383	55	1,067		Great Lakes, —Lake U. S. Naval Hospital*≜ Gen Navy 23	0 145		•••	3,892								
	264	217	60	1,829	910		0 8 5 20	2 5	20 104	318 946								
	290 Bann	181	20	378	310	Harvard, 3,121—McHenry Harvard Community Hosp Gen Part 2	1 15		138	488								
	GO GO	e Hos			231	Harvey, 17,878—Cook Ingalls Memorial Hospital. Gen NPAssn (5 65	25	576	2,592								
	86	60 44	17	518	4,351		5 40	10	140	1,338								
	125 20	55 12	25	612	3,007 165		S 52	12	243	1,439								
	171 301	133 198	54	1,437	5,475 2,750		0 31	17	242	1,232								
	100	78	21	348	4,075	Hillsboro, 4,514—Montgomery Hillsboro Hospital Gen NPAssn 3 Hines, —Cook	9 26	5	107	718								
	526 160	374 115	134 36		11,554 5,767	Veterans Admin. Facility+4 Gen Vet 1,5: TB Vet 19				10,0S1 232								
	100 550	63 250	8 35	149 319	2.287 3,811	Hinsdale, 7,336—Du Page Hinsdale Sanitarium and Hospital♣♦	0 56	15	256	1,720								
	89	55	32	659	2,341	Jacksonville State Hospital. Ment State 3,40				806								
	125	85	20	421	4,031	Morgan County Tuberculosis	0 3,103	••	•••	35								
	100	72	20	566	3,823	Norbury Sanatorium N&M Corp 19			162	172 1,489								
	28	18	4	151	866	Passayant Memorial Hos-	3 57		243	1,783								
	146 165	108 118	24 30	374 651	3,461 3,662	Joliet, 42,365—Will Illinois State Penitentiary												
1,	55 868	44 1,688			111 605	Hospital	0 203		1,045 600	2,301 6,089 3,413								
			٥-	H 23	0.0-0	Will County Tuberculosis SanatoriumTB County 10			•••	81								
	140 80	117 63	25	721	3,952 117	Kankakee, 22,241—Kankakee Kankakee State Hospital Ment State 4,13				1,114								
l	180 75	186 44	25 	487	5,737 1,153	St. Mary Hospital Gen Church Is Kenilworth, 2,935—Cook Kenilworth Sanitarium N&M Indiv	5 93 0 27		636	3,888 137								
	33	22			49	Kewanee, 16,901—Henry	4 33	12	173	1,118								
	40 45	26 26	9	189 117	878 959	St. Francis Hospital Gen Church &	6 55	13	235	1,266								
ı	14	6	5	76	363	Alice Home Hospital Gen NPAssn 4 Lake Forest Hospital Unit of Alice Hom	5 17 e Hospi	tal	70	725								
	60	43	17	428	1,588		0 65	15	296	1,936								
1,	,475	1,457	••		423	Libertyville, 3,930—Lake Condell Memorial Hospital. Gen NPAssn ! Lincoln, 12,752—Logan	5 15	9	110	575								
						Evangelical Deaconess Hospo Gen Church St. Clara's Hospital Gen Church	5 39 60 40		22S 125	1,622 1,276								
ı	47	27	9	190	963	Litchfield, 7,048—Montgomery St. Francis Hospital Gen Church 14	2 131	30	257	3,151								
	218 ,226	190 2,151	••		1,532 794	Mackinaw, \$45—Tazewell Oak Knoll Sanatorium TB County Macomb, \$,764—McDonough	5 36			50								
ı ~	126	66		546			5 29 0 62		132 231	929 2,019								
	232	145	36	• 747	4,310	Manteno State Hospital+ Ment State 6,90				2,136								
	99	84			80	Mattoon, 15,827—Coles Memorial Methodist Hosp Gen Church & Melrose Park, 10,933—Cook	0 30	10	172	1,178								
	91	73	15	276	1,424		6 36	16	373	1,642								
	12	6		33		Harris Hospital Gen Part Metropolis, 6,287—Massac	8 14	5	97	514								
4	,932 83	4,964 70 59		***	1,962 202	Moline, 34,608—Rock Island	5 4		72	448								
1	104 125	101				Lutheran Hospital** Gen Church 19 Moline Public Hospital** Gen City 16 Monmouth, 9,006—Warren			601 990	2,360 4,563								
1	90	86			-	Monmouth Hospital Gen City (Morris, 6,145—Grundy	3 40	15	253	1,053								
1	30 231	10 182	35	1,022	8,149	Morris Hospital Gen NPAssn 3	5 24	14	249	£61								
1	262	159	50	1,210	7,083	Murphysboro, 8,976—Jackson St. Andrew's Hospital Gen Church	6 20	8	03	199								
ı	175	160			7,384	Naperville, 5,272—Du Page	5 E8	6	122	1,110								
1	11	8				Normal, 6,983—McLean Brokaw Hospital*o Gen Church	2 65		279	2,406								
	160 H	149 Cev to			,		7 55	••	•••	24								

ILLINOIS	Continue	eď				ILLINOIS—Continued
			og.	o,		
ee de d	vnership Control	Beds Average Census †	Bassinets	Number of Births	<u> 6</u> +	Trype of Service Ownership or Control Or Control Or Control Or Consus † Beds Consus † Bussinets Births Admist
Hospitals and Sanatoriums	Own or C	Beds Aver Censi	3888	irt.	Admis- sions †	Hospitals and Sanatorium Service Connection Beds Beds Average Connection Births Average Connection August A
North Riverside (Riverside P.O.), 1.030	Cook	H 40	44	Z	4.20	Hospitals and Sanatoriums Hospitals and Sanatoriums Hospitals and Sanatoriums Hospitals and Sanatoriums Sycamore, 4,702—De Kalb
Municipal Tuberculosis Sani- tarium—North Riverside						Sycamore Municipal Hosp A Con City on the to
Division TB Oak Forest, 825—Cook	City 2	56 240	• ••	•••	282	
Cook County Infirmary Chr Cook County Tuberculosis	County 1,0	75 1,050	٠.	•••	. 5,010	Douglas County Jarman Hos.
Hospital TB Oak Park, 66,015—Cook	County 59	94 472	:		373	Urbana, 14.064—Champaign
Oak Park Hospital*▲♦ Gen	Church 1		46		5,507	Carle Memorial Hospital Gen Corp 55 37 10 156 1,773
West Suburban Hospital*Ao Gen Olney, 7,831—Richland	NPAssn 3	12 220	100	2,001	l 9,3S3	Champaign County Hospital Gen County 55 35 10 117 891 Mercy Hospitalo
Olney Sanitarium Gen Oregon, 2,825—Ogle	Corp	75 47	11	183	3 1,848	The Outlook
Warmolts Clinic Gen Ottawa, 16,005—La Salle	Indiv	8 5	3	15	162	Watseka, 3,744—froquois
Highland TB Ottawa Tuberculosis Sans-	County 8	66 74		•••	51	Iroquois Hospital Gen NPAssn 41 30 8 259 1,314 Waukegan, 34,241—Lake
_ torium TB	Corp 13			:::	166	Lake County General Hosp Con County 75 50 6 51 1000
Ryburn Memorial Hosp. Ac Gen Pana, 5,966—Christian	-	8 45	25		,	Lake County Tuberculosis Sanatorium TB County 100 &
Huber Memorial Hospital. Gen Paris, 9,281—Edgar	Church 8	37 28	6	112	817	Victory Memorial Hospital Con NDAcon 50 ct 14 100 0010
Paris Hospitalo Gen Paxton, 3,106—Ford	NPAssn '	70 36	6	142	1,798	White Hall, 3,025—Greene White Hall Hospital Gen NPAssn 10 5 5 60 240
Paxton Community Hospital Gen Pekin, 19,407—Tazewell	NPAssn :	18 10	4	99	424	Winfield Sanatorium TB NPAssn 78 63 89
Pekin Public Hospital Gen Peoria, 105,087—Peoria	NPAssn 7	8 58	15	410	1,995	Zace Sanatorium TB NPAssn 50 38 70 Woodstock, 6,123—McHenry
Costeff Sanatorium N&M	Indiv 1		::	:::	47	Woodstock Public Hospital, Gen NPAssn 41 27 16 283 1,372 Zeigler, 3,006—Franklin
John C. Proctor Hospital. Gen Methodist Hospital of Cen-	NPAssn 11			379	,	Zeigler Hospital Indus NPAssn 12 2 75
tral Illinois*+* Michell Farm	Church 20 Indiv 2	2 17		1,191	6,034 45	Related Institutions
Michell Sanitarium N&M Peoria Municipal Tuberculo-	Indiv 2			ata su	pplied	Arrowsmith, 294—McLean L. M. Johnson Hospital Gen Indiv 10 1 2 14 45
sis Sanitarium+4 TB Peoria State Hospital+9 Ment St. Francis Hospital*+40 Gen	City 8 State 2,78	9 89 0 2,518		•••	145 961	Belleville, 28,405—St. Clair St. Clair County Hospital
St. Francis Hospital**** Gen	Church 35	0 301	50	1,655	10,323	and Home
Peru, 8,983—La Salle Peoples Hospital Gen	NPAssn 5	0 37	10	130	940	Beverly Hills Rest Home Copy Indiv 19 8 22
Pontiac, 9,585—Livingston Livingston County Sana-						Chicago Home for Convales- cent Women and Children. Conv. NPAssn. 47 35
torium TB St. James' Hospital Gen	County 4 Church 4	4 43	14	229	39 703	House of Correction Hosp Inst City 75 22 1,161
Princeton, 5,224—Bureau	Onuich 4	0 18	12	200	103	Jones Nursing Home Conv Indiv 20 19 20 Long's Convalescent Home N&M Indiv 24 20 90
Julia Rackley Perry Me- morial Hospital Gen	City 59	33	10	226	1,196	Parkway Lodge Convalescent Home for Men and Women Conv City 180 139 607
Quincy, 40,469—Adams Blessing Hospital	NPAssn 11	0 97	20	405	2,856	Salvation Army Booth Me-
HillerestTB St. Mary Hospital** Gen	County 5	3 44		637	42	Southside Sanitarium Conv Indiv 50 35 20 Washington and Jane Smith
Rantoul, 2,367—Champaign					3,608	Home InstGen NPAssn 22 17 250
Station Hospital Gen Red Bud, 1,302—Randolph	Army 15	0 114	4	10	4,071	Danvers, 705—McLean Willow Bark Hospital Alcoh Corp 12 5 48
St. Clement's Hospital Gen Robinson, 4,311—Crawford	Church 1	2 8	4	31	207	Decatur, 59,305—Macon City Public Hospital Iso City 40 5 100
Robinson Hospital Gen Rockford, 84,637—Winnebago	Part 1	3 4	5	30	167	Des Plaines, 9,518—Cook Forest Sanitarium N&M Indiv 24 12 47
Elmlawn (Wilgus Sanit.) N&M			::		114	Dixon, 10,671—Lee Dixon State Hospital MeDc State 4,570 4,303 10 8 (20)
Rockford Hospital ◆ Gen Rockford Municipal Tubercu-	NPAssn 8		18	381	3,025	Evanston, 65,389—Cook Broadhurst Nursing Home Conv Part 24 18 65
losis Sanatorium+40 TB St. Anthony's Hospital*40 Gen	City 12- Church 200		50	1,245	153 7,037	Grove House for Convales-
tal Geniso	NPAssn 7	5 75	15 6	421 24	3,072 935	Cents Could Nedsen 36 30 163 The Cradle Chill NPAssn 36 30 53 Virginia Hall Nursing Home Conv Part 30 24
re und	, coupty		•		VDU	Geneva, 4,101—Kane
Rock Island County Tuber-	County 7			:::	53	State Training School for Girls
St. Gen	Church 150		30	531		Godfrey, 300—Madison Beverly Farm
Rosiclare Hospital Gen Rushville, 2,480—Schuyler	Indiv 1		2	73	349	Henry, 1,677—Marshall Prs. Coggeshall and Dysart Heartsl
Culbertson Hospital Gen St. Charles, 5,870—Kane	Indiv 27	6	5	21	204	Lincoln, 12,752—Logan
Delnor Hospital Gen Savanna, 4,792—Carroll	NPAssn 30		8	104	557	Colony MeDe State 4,673 4,313 512
Sayanna City Hospital Gen Shelbyville, 4,092—Shelby	City 10	3 9	6	129	344	Mattoon, 15,827—Coles Independent Order Odd Fel-
Shelby County Memorial Hos-	NPAssn 21	. 15	7	109	517	lows Old Folks Home Hos- pital
pital	Indiv 10		2	25	157	tal Ment State 475 466 47
the state of the s			15		3,454	ibercu- 5
Palmer Sanatorium TB	NPAssn 120 Corp 82				105	losis Sanatorium TB County 12 8
St. John's Crippled Children's	f St. John's	Sanitari	ım	1 0.10 1	1 055	Philadelphia Memorial Hospital MPAssn 65 43 1,312
St. John's Hospitalo Thor	Church 542 Church 270	410	45	1,240 1	447	
Сед Сед	Church 78	67	12	237	2,099	dren's School Hospital Inst State 120 04
Hillians Assess					}	Florence Crittenton Home. Mat NPAgen 70 43
Hospital	liet		_			Inst State 120 St 1,107
Home Hospital	NPAssn 25 City 57	10 35		23 371	318 1,763	Quincy, 40,403-Auntina Conv NPAssn 20 6 119
Streator, 14,930—La Salle St. Mary's Hospital Gen	Church 118	90	16	515	3,495	g -
Cublotto 989—T 66	Indiv 8	_	3	40	{	Orth NPAssn 20 20
Angear Hospital Gen			e em h	ale an	d abbri	viations is on page 1071

ILLING	ois—	Continu	ed				1	INDIANA—Continued	
		ë jo		e) +	ts.	jo:	1	r of	
Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis slons †	Type of Service Ownership or Control Beds Average Census † Bassinets Number of Births	sions †
St Charles, 5,870-Kane	E-02	0 0		10	_	77	,	Indiananalis 386 072—Marian	199
	Inst	State	27	15			1,165	Emhardt Memorial Hospital Gen Indiv 30 10 8 3 3	33ə
Urbana, 14,064—Champaign McKinley Memorial Hospital	Inst	State	1 55	42			3,072	torium (mentominist) man com	174
Wedron, 202—La Salle St Joseph's Health Resort West Chleago, 3,355—Du Page		Church	71	53			1,142	Flower Mission Memorial Hospital Unit of Indianapolis City Hospital Indianapolis City Hosp **+40 Gen City 583 489 41 857 10,8	\$9 <u>2</u>
Country Home for Convales	Orth	NPAssn	120	67			122	Indiana University Medical	143
Wheaton, 7.389—Du Page	MeDe	Indiv	55	50			13	Center*+AO Gen State 566 500 38 1,071 10,0 James Whitcomb Riley Hos	
Winnetka, 12,430—COOK	Conv		75	39			280	pital for Children Unit of Indiana University Medical Cent Kiwanis Home Unit of Indiana University Medical Cent Methodist Hospital**AO Gen Church 600 450 60 2,334 15,8	ter
I	NDIA	ANA					}	'Norways' Sterne Memor al	236 ter
		₽ 70			20	oţ	1	Rotary Convalescent Home Unit of Indiana University Medical Cent St Vincent's Hospital** Gen Church 270 272 55 1 495 7,8	ter
	to g	Ownership or Control		Average Census †	Bassinets	Number of Births	2±	Sunnyside Sanatorium+ TB County 26° 259	179
Hospitals and Sanatoriums	Type of Service	Ç	Beds	ens	sass	Tum Sirts	Admís sions t	William H Coleman Hos	
Anderson, 41,572—Madison Hoppes Lying In Hospital	Mat	Corp	13		10	176	203	pital for Women Unit of Indiana University Med cal Cent Jeffersonville, 11,492—Clark Clark County Memorial Hos	
St John's Hickey Memorial		_				692	3,586	pital ^A Gen County 40 23 7 193 9 Kendallville, 5 431—Noble	904
Hospital≛≎ Angola, 3,141—Steuben	Gen	Church	135	126			,	Lakeside Hospital Gen City 28 19 12 150 7 kokomo, 33 795—Howard	7 86
Cameron Hospitals Argos, 1,190-Warshall	Gen	NPAssn	20	11	5	72	623	St Joseph Memorial Hosp Gen Church 100 59 25 480 2,5	₹35
Kelly Hospital	Gen	NPAssn	10	5	4	27	207	La Fayette, 28,798—Tippecanoe La Fayette Home Hosp +40 Gen NP Assn 120 86 20 529 33	
Auburn, 5,412—De Kalb Dr Bonnell M Souder Hos				_	_			St Elizabeth Hospital+AO Gen Church 230 161 30 679 6,1 William Ross Sanatorium TB County 40 24	100 55
pital Sanders General Hospital	Gen Gen	Indiv Indiv	20 11	5 7	7 4	92 24	365	La Porte, 16 180—La Porte	
Batesville, 3 065-Ripley	Gen	Church	40	32	10	919	1,169	Lebanon, 6 599—Boone	o49
Margaret Mary Hospital Bedford, 12 514—Lawrence							,	Witham Memorial Hospital Gen County 54 34 12 273 1,2 Linton, 6,263—Greene	202
Dunn Memorial Hospital Beech Grove, 3 907—Marion	Gen	NPAssn	2ə	25	6	223	1,526	Freeman Greene County Hos	533
St Francis' Hospital* Bloomington, 20 870—Monroe	Gen	Church	140	77	40	1,091	3,233	Logansport, 20,177—Cass	
Bloomington Hospitalo	Gen	NPAsen	35	23	15	120	795	Cass County Hospital Gen County 60 52 10 244 1,6 Logansport State Hosp + Ment State 2,395 2 126	599 590
Bluffton, 5,417—Wells Clinic Hospital	Gen	Corp	38	25	8		1,358	St Joseph Hospital Gen Church 50 36 10 184 1,1 Madison 6 923—Jefferson	140
Wells County Hospital Clinton, 7,092—Vermillion	Gen	County	24	12	6	1 60	486	Kings Daughters Hospital Gen NPAssn 50 27 10 133 S Marion, 26,767—Grant	962
Vermillion County Hospita Columbus, 11,738—Bartholome		County	37	26	G		1 048	Marion General Hospital Gen NPAssn 55 39 10 360 1,6 Veterans Admin Facility See Veterans Admin Hospital, Ind	931
Bartholomew County Hosp Connersville, 12,898—Fayette	Gen	County	35	27	10	247	1 610	Martinsville, 5,009—Morgan Morgan County Memorial	
Fayette Memorial Hospital Crawfordsville, 11,0-9—Montgo	Gen	NP Assn	40	27	15	280	950		699
Culver Hospital Crown Point, 4,643—Lake	Gen	County	57	42	12	301	1,838	Clinic Hospital Gen Corp 50 29 12 93 1,5 Indiana Hospital for Insane	594
James O Parramore Hosp Decatur, 5,861—Adams	▲ TB	County	280	278			215	Criminals Ment State 297 296	29 790
Adams County Memorial Ho	Gen	Counts	40	90	12	909	1,281	Michigan City Sanitarium Conv Corp 31 10	o29
pital East Chicago, 54 637—Lake St Catherine's Hospital*▲		Church	280	193	60	1,214	•	St Anthony's Hospital Gen Church 105 41 21 423 17 Mishawaka, 28 298—8t Joseph	
Fikhart, 33 434—Eikhart	Gen	NPAssn	73	60	1a	•	2 562	Mooresville, 1,979—Morgan	449
Elkhart General Hospital Elwood, 10,913—Yadison								Muncie, 49,720—Delaware	300
Mercy Hospital Fransville 9,,062—Vanderburg	Gen h	Church	45		15	338		Ball Memorial Hospital*+4 Gen NPAssn 217 181 20 1,002 06 New Albany, 20,414—Floyd	
Boehne Tuberculosis Hosp + Evansville State Hospital	Ment	County State	150 1,200	1°6 1,185			283 393	St Edward Hospital Gen Church 100 47 14 300 10 Silvercrest" Southern Indi	
Protestant Deaconess Hospital	Gen	Church	165	135	23	750	5,981	New Castle, 16 6'0—Henry	293
St Mary's Hospital	Gen Gen	Church USPHS	150 100	100 51		546	741	Clinic Hospital Gen Part 18 No data suppli- Henry County Hospital Gen County 60 51 14 361 2,2 North Madison, 316—Jefferson	
Welborn Walker Hospital	Gen trion	Corp	111	86	15	211		North Madison, 316—Jefferson Madison State Hospital Ment State 1,580 1,593	316
Station Hospital Fort Wayne, 118 410—Allen	Gen	lrmy	154	78	4	27	2,178	Peru, 12 432—Miami Dukes Miami County Me	
Fort Wayne, 118 410—Allen Irene Byron Sanatorium Lutheran Hospital*▲◇	TB Gen	Counties Church	s 250 170	215 124	34	850	468 4,161	morial Hospital Gen County 48 41 12 256 17 Wabash Railroad Employees	°60
Mcthodist Hospital▲◊	Gen Gen	Church Church	87 248	5S	22 52	295	2 061		549
St Joseph Hospital*** Frankfort, 13,706—Clinton Clinton County Hospital	Gen	County	43		10	250		Parkview Hospital Gen County 30 21 7 258 16	026
Garrett, 4,9%.—De Kalb	Gen	Church	42	30		90		Portland, 6 362—Jay Jay County Hospital Gen County 35 28 10 279 1	315
Sacred Heart Hospital Gary, 111,719—Lake	Gen	\P4ssn						Princeton, 7,7%—Gibson Gibson General Hospital A Gen APAssn 30 21 6 129 7	750
Lincoln Hospital Methodist Hospital*	Gen	Church	116	15 122	24	3S 1,012	4 550	Rensselaer 3 214—Jasper Jasper County Hospital Gen County 38 23 10 284 1	°02
St John Hospital St Mary's Mercy Hosp *0	Gen Gen	Indis Church	17 215	163	- 50			Richmond, 35,147—Wayne Red Memorial Hospital Gen PAssn 128 99 30 720 50	002
Greeneastle, 4 872—Putnam Putnam County Hospital	Gen	County	46	23	8	1.5	1 274	Richmond State Hospital Ment State 1,000 1,630 Smith Esteb Memorial Hosp TB County 50 41	928 90
Decatur County Memori	al _	~		_				Rochester, 3 825—Fulton	691
Hospital	Gen	County	23	20	10	126		Indiana State Sanatorium TB State 2.0 202 a	276
Hammond, 70,184—Lake Mount Mercy Sanitarium St Margaret Hospital**	Sen Gen	Church Church	215	24 165	50	1,725	190 7,153	Rushville, 5,000—Rush City Hospital	375
Hartford City, 6946—Blackfo Blackford County Hospita Huntington, 13903—Huntingt	rd 1 Gen	County	30	12	: 5			Seymour, 8 (20—Jackson Schneck Memorial Hospital Gen County 25 15 8 176 c	າດາ
Huntington, 13 903—Huntingt Huntington County Hospit	on al Gen	County	^2	21	12	204		Shelbyville, 10,791—Shelby W. S. Major Hospital Gen. City 43 % 6 176 1,7	

INDL	ANA-	-Conti	nued					1
	1 9	Ownership or Control		age 18 †	nets	Number of Births	6 ≁	
Hospitals and Sanatoriums	Type of Service	Own or C	Beds	Average Census †	Bassinets	Num Birth	Admis- sions †	Hospitals and Sanatorius
South Bend, 101,268—St. Joseph Epworth Hospital*+40	Gan	NPAssr	1 155	135	37	1,108		Atlantic, 5,802—Cass
Healthwin Hospital▲ St. Joseph Hospital★▲◇	. TPR	County	205	187	·		273	Battle Creek, 827-1da
Sullivan, 5,077—Sullivan		Church	150	99	42	926	4,164	Battle Creek Hospital
Mary Sherman Memoria	Con	Country	=0			100		Belmond, 2,109—Wright Belmond Hospital
Hospital▲ Tell City, 5,395—Perry	. Gen	County	50	31	. 7	132	1,013	Boone, 12,373—Boone
Parkview Hospital Terre Haute, 62,693—Vigo	, Gen	Indiv	14	4	2	12	211	Boone County Hospita Buffalo Center, 911—Winne
Hoover's Sanatorium	. Gen	Indiv	14	4	5	25		Dolmage Hospital Burlington, 25,832—Des Mo
St. Anthony's Hospital*Ao Union Hospital	. Gen	Church NPAssn		103 121		458 609	3,219	Burlington Protestant
Tinton, 5.101—Tinton							4,779	pital • Mercy Hospital •
Emergency Hospital Union City, 3,535—Randolph		Part	10	4	2	87	284	St. Francis Hospital
Union City Hospital Valparaiso, 8,736—Porter	. Gen	Indiv	13	7	3	86	422	Carroll, 5,389—Carroll St. Anthony Hospital
Porter Memorial Hospital.	. Gen	County	52	33	17	332	1,064	Cedar Falls, 9,349—Black H
Veterans Administration Hosp Veterans Admin Facility	ital, 507 Ment	-Grant Vet	1,509	1,501			-	Sartori Memorial Hospit Cedar Rapids, 62,120—Linn
Vincennes, 18,228—Knox			-	•		•••	308	Mercy Hospital*▲◇ St. Luke's Methodist
Good Samaritan Hospitalo Hillcrest Tuberculosis Hosp.	. Gen . TB	County County		66 30		272	2,022 41	pital+A0
Wabash, 9,653Wabash								Centerville, 8,413—Appanoo St. Joseph's Mercy Hospi
Wabash County Hospital Warsaw, 6,378—Kosciusko		County	55	. 32	14	278	1,207	Chariton, 5,754—Lucas
McDonald Hospital	Gen	Indiv	31 25	25	9	191	875	Chariton, 5,754—Lucas Yocom Hospital Charles City, 8,631—Floyd Cader Veller Hospital
Washington, 9,312—Daviess		Indiv	23	13	10	97	692	Cedar Valley Hospital. Cherokee, 7,469—Cherokee
Daviess County Hospital Williamsport, 1,222—Warren	. Gen	County	96	55	12	290	2,139	Cherokee State Hospital
Maris Hospital	Gen	Part	19	12	5	53	607	Sioux Valley Hospital Clarinda, 4,905—Page
Winchester, 5,303—Randolph Randolph County Hospital	. Gen	County	35	30	8	227	1,509	Clarinda Municipal Hosp
Wolflake, 250-Noble		_						Clarinda State Hospital
Luckey Hospital	. Gen	Part	17	9	4	30	185	Clarion General Host
Related Institutions								and Clinic Clinton, 26,270—Clinton
Anderson, 41,572—Madison Ella B. Kehrer Hospital	. TB	County	50	35			64	Jane Lamb Memorial Ho
Butlerville, 266—Jennings		_				•••		St. Joseph Mercy Hospit Colfax, 2,262—Jasper
Muscatatuck State School Evansville, 97,062—Vanderburg	, MeDe b	State	1,250	1,116	••	•••	955	Colfax Sanitarium
French Hospital		NPAssn	6	4	• •	•••	289	Council Bluffs, 41,439—Potts Jennie Edmundson Memo
Fort Wayne, 118,410—Allen Fort Wayne State School	. MeDe	State	1,903	1,930			313	Hospital*A
Grace Convalescent Hosp Medical Center Hospital	Conv	Indiv Indiv	20 16	12 8	·:	i79	30 520	Mercy Hospital*A St. Bernard's Hospital.
Greencastle, 4,872—Putnam					•	110		Cresco, 3,530—Howard
Indiana State Farm Hosp Greensburg, 6,065—Decatur	. Inst	State	47	25	••	•••	700	St. Joseph Mercy Hospital Creston, 8,033—Union
Odd Fellows Home Hosp	Inst	NPAssn	75	55		•••	73	Greater Community Host Davenport, 66,039—Scott
Indianapolis, 386,972—Marion Suemma Coleman Home	Mat	NPAssn	20	14	20	49	54	Mercy Hospital*▲◆
Knightstown, 2,323—Henry								Pine Knoll Sanatorium St. Elizabeth's and St. Joh
Indiana Sailors' and Soldiers Children's Home		State	45	4			1,186	Hospitals
Kramer, 500-Warren Mudlavia Springs Hotel and	1							St. Luke's Hospital Decorah, 5,303—Winneshiek
Sanitarium	Conv	Corp	65	N	o da	ta sup	plied	Decorah Hospital
La Fayette, 28,798—Tippecanoe Indiana State Soldiers' Home								Denison, 4,361—Crawford Denison Hospital
Hospital	Inst	State	129	57	••	•••	414	Des Moines, 159,819—Polk
Lagrange, 1,814—Lagrange Lagrange County Hospital.	Inst	County	14	7			181	Public Hospital***
Martinsville, 5,009-Morgan		Corp	164	82			1,920	Broadlawns Polk Cour Public Hospital
Home Lawn Mineral Springs Martinsville Sanitarium	Conv	Corp	114	42	::		1,110	i Broadlawns Polk Coun
New Castle, 16,620—Henry Indiana Village for Epilep-								Public Hospital* Iowa Lutheran Hospital* Iowa Methodist Hospital*
tics	Epil	State	1,035	981	••	•••	159	Iowa Methodist Hospital* Mercy Hospital*▲○
Pendleton, 1,681—Madison Indiana State Reformatory								The Retreat
Hospital	Inst	State	106	28	••	•••	1,674	Dubuque, 43,892—Dubuque Finley Hospital
Indiana Boys School Hosp Rome City, 504—Noble	Inst	State	17	4	••	•••	496	Finley Hospital
Rome City, 504—Noble Kneipp Springs Sanatorium.	Conv	Church	200				1,694	St. Joseph Sanitarium
Wilkinson, 336—Hancock Dr. Charles Titus Hospital		Indiv	7	1			375	Sunny Crest Sanatorium. Eldora, 3,553—Hardin
Dr. Charles Thus Hospital	241	12444	-	_	••	•		Eldora Memorial Hospital
	WOI	JA.					1	••••
		6 7				1 0	}	
	of ice	Ownership or Control		S K	Bassinets	e	المد	Fairfield, 6,773—Jefferson Jefferson County Hospital
Hospitals and Sanatoriums	A Pe	Cor	Beds	Average Census ‡	ssi	Number of Births	Admis- sions t	Jefferson County Hospital Forest City, 2,545—Winnebago
Hospitals and Cantionians	Type Servic	ő	ã	Č\$	គ្ន	ZA .	\$ 68 }	Irish Hospital
Akron, 1,314-Plymouth			14	5	3	45	245	
Akron Hospital	Gen	Indiv					- (Fort Dodge, 22,904—Webster Lutheran Hospital
Miner's Hospital	Gen	Indiv	25	7	4	22	415	St. Joseph Mercy Hospital
Algona, 4,954—Kossuth Kossuth Hospital	Gen	Indiv	28	15	8	142	557	Fe Railway Employees
Alta, 1,269—Buena Vista Alta Community Hospital		NPAssn	13	3	5	25	151	Hospital Sacred Heart Hospital
Ames, 12,555—Story Iowa State College Hosp. A.		State	75	11		1	,217	Parter vicare morbida.
Anomore JOW—Jones		Church	30	15	9	186	C10	•
Mercy Hospital	Gen	CHUICH						viations is on page 1071
			r\ey	to age				···· · · · · · · ·

IOWA	—Contin	ueđ				
	d jo		age us †	Bassinets	Number of Births	<u>.</u>
Atlantic, 5,802—Cass		Beds	Average Census †	Bass	Num	Admis- Flons †
Atlantic Hospital Ge Battle Creek, 827—Ida	n Corp	44	23	6	192	824
Battle Creek Hospital Ge Belmond, 2,109—Wright	n Part	17	6	4	33	260
Belmond Hospital Ge Boone, 12,373—Boone	n Part	11	5	4	73	297
Boone County Hospital Gel Buffalo Center, 911—Winnebago	n Count	y 75	20	10	298	993
Dolmage Hospital Ge. Burlington, 25,832—Des Moines Burlington Protestant Hos-	n Part	13	8	7	87	252
Mercy Hospital Ger St. Francis Hospital Ger	n Church	1 125	96 50 38	20 20 14	250	2,706 1,518 1,385
Carroll, 5,389—Carroll St. Anthony Hospital Cedar Falls, 9,349—Black Hawk	n Church	108	90	22	516	3,194
Sartori Memorial Hospital Ge	n City	35	20	8	200	920
Cedar Rapids, 62,120—Linn Mercy Hospital*▲◇ Ger		127	90	25	712	3,405
St. Luke's Methodist Hos- pital+A0			99	20		4,671
Centerville, 8,413—Appanoose St. Joseph's Mercy Hospital Ger			32	6	212	1,766
Chariton, 5,754—Lucas Yocom Hospital Gen		20	10	5	59	558
Charles City, 8,631—Floyd		45	31	12	213	1,237
Cedar Valley Hospital Gen Cherokee, 7,469—Cherokee Cherokee State Hospital Mer Sioux Valley Hospital Gen Clarinda, 4,905—Page	it. State	1,600	1,612	 12	212 1	353 1,170
Clarinda Municipal Hospital. Gen Clarinda State Hospital Men	City	40 1,793		10	142 1	1,001 437
Clarion, 2,971—Wright Clarion General Hospital and Clinic	Part	14		6 Es	stab. 1	941
Clinton, 26,270—Clinton Jane Lamb Memorial Hosp. Gen St. Joseph Mercy Hospital Gen	NPAssn Church	95 73				,473 ,548
Colfax, 2,262—Jasper Colfax Sanitarium Gen Council Bluffs, 41,439—Pottawattam	Corp	18	6	1	16	215
Jennie Edmundson Memorial Hospital*40	NPAssn Church	122 138			40S 2,	,786 ,115
St. Bernard's Hospital [©] N&I Cresco, 3,530—Howard	I Church	180 25	145 .	_	•••	295 425
St. Joseph Mercy Hospital Gen Creston, 8,033—Union	Church				suppl.	ied
Greater Community Hosp Gen Dayenport, 66,039—Scott	County	50		_	73 4,	
Mercy Hospital** Gen Pine Knoll Sanatorium TB St. Elizabeth's and St. John's	Church County	157 100	108 3 70 .		••	90
Hospitals Unit St. Luke's Hospital▲○ Gen	of Mercy I Church	Hospita 80	62 20) 0	01 2,5	100
Decorah, 5,303—Winneshiek Decorah Hospital ▲ Gen	NPAssn	29	21 8	3 2	46 E	301
Denison, 4,361—Crawford Denison Hospital	Indiv	15	7 4		41 4	113
Public Hospital*A0 Gen	County	132	108 16		55 4,4	ns
Broadlawns Polk County Public Hospital Iso	County	49	12	••	•	71
Broadlawns Polk County Public Hospital	County Church	100 125	62 86 20	50	3,7	63 10
Iowa Lutheran Hospital** Gen Iowa Methodist Hospital** Gen	Church Church	239	162 40 112 24	1,03 61	9 4.1.	21
Mercy Hospital** Gen The Retreat N&M Veterans Admin. Facility*. Gen	Corp Vet	50	35 307			,,,
Dubuque, 43,692—Dubuque Finley Hospital	NPAs n	100	75 16	31	1 2,01	ű
St. Joseph Mercy Hospital Gen	Church	130	83 22	449	. •	I
St. Joseph Sanitarium N&M Sunny Crest Sanatorium TB	Church County	70	62	•••		
Eldora, 3,553—Hardin Eldora Memorial Hospital Gen	City	26	10 G	78		
Alto Gen	NPAssn	22	12 8	111		
Gen	NPAssn	35	17 6	169		
Fairfield, 6,773—Jefferson Jefferson County Hospital Gen	County	26	20 6	160	1,000	
Forest City, 2,545—Winnebago	Indiv	14	9 5	132		
Fort Des Moines, 1,800—Polk	Army	73	59 4	25	_	
Fort Dodge, 22,901—Webster Lutheran Hospital Gen St. Joseph Mercy Hospital Gen			6 20 0 15	313 143	3,497 2,793	
Fort Madison, 14,063—Lee Atchison, Topeka and Santa					157	
Fe Railway Employees' Hospital Indus Sacred Heart Hospital Gen	NPAssn Church		5 io	217	2,M;	
Sacred Heart Hospital Gen	NPAssn	51 2		119 72	1,001	
Gen	Church	30 1	3 10	•-		

NUMBER 13															
IOW	A—C	ontinue	d				i	IOW	A—C	ontinu	eđ			u.	
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census f	Bassinets	Number of Births	Admis sions t	Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis sions †
Hamburg, 2,187—Fremont		Indiv	д 16	12	#4	71	651	Spencer, 6,599—Clay Spencer Municipal Hospital		City	26	20	9	125	1,050
Hampton, 4 006—Franklin	Gen Gen	Church	46	25	8	149	1,026	Spirit Lake, 2,161—Dickinson Spirit Lake Hospital	Gen	Part	13	8	4	72	448
Hartley, 1,503—O Brien Hand Hospital	Gen	Indiv	12	5	4	67	367	Storm Lake, 5,274—Buena Vista Porath Hospital	Gen	Indiv	9	9	6	135	341
Hull, 1,072—Sioux Hull Hospital	Gen	Corp	15	10	3	23	462	Toledo, 2,073—Tama Sac and Fox Sanatorium	GenTb	14	70	40	3	21	114
Ida Grove, 2,238—Ida Ida Grove General Hospital		Part	12	4	4	39	22ə	Vinton, 4,163—Benton Virginia Gay Hospital Washington, 5,227—Washingto	Gen	City	25	14	6	94	463
Independence, 4 342—Buchanan Independence State Hospital			1,735	1,664			404	Washington County Hosp	Gen	County	35	25	10	214	988
Peoples Hospital lowa City, 17,182—Johnson Children's Hospital Iowa State Psychopathic		NPAssn f Univers	32 ity H	18 Ospita	8 1s	155	632	Waterloo, 51,743—Black Hawk Allen Memorial Hospital Presbyterian Hospital St Francis Hospital	Gen Gen Gen	NPAssn NPAssn Church	75 34 90	67 29 69	10	673 181 5°0	3 278 1,736 2,278
Hospital+O Mercy Hospital •	Ment Gen	State Church	60 100	41 77	20	478	376 2,241	Waverly, 4,156—Bremer St Joseph Mercy Hospital	Gen	Church	50	26	10	196	1,051
University Hospitals*+▲◇ Iowa Falls, 4 425—Hardin	Gen	State	900	750		-	21,564	West Union, 2,059—Fayette West Union Community Hos	Can	0.4=	70	•		57	900
Elisworth Municipal Hosp keokuk, 15,076—Lee	Gen	City	35		10		1,600	pital Williamsburg, 1,308—Iowa Miller Hospital	Gen Gen	City Indiv	12 8	6 4	4 2	22	288 157
Graham Protestant Hosp St Joseph's Hospital	Gen Gen	NPAssn Church	75 110		12 15	230 283	2,447 2,130	Related Institutions	Gen	marv	8	*	-		101
	Ment	Vet	1,268	1,263			415	Anamosa, 4,069—Jones	Ynet	State	25	6			521
Lake City, 2 216—Calhoun Davidson Hospital McCrary Hospital	Gen Gen	Indiv Indiv	10 28	7 8	6 6	$\frac{21}{72}$	349 460	Men's Reformatory Hospita Des Moines, 159,819—Polk Benedict Home	Mat	NPAssn	25	14	5	13	15
McVay Memorial Hospital Le Mars, 5 353—Plymouth	Gen	Part	15	11	5	80	450	Junior League Convalescent Home for Children		NPAssn	20	16	·	10	80
Sacred Heart Hospital	Gen	Church	40	25	10	225	1,006	Salvation Army Booth Me morial Hospital	Mat	Church	50	31	30	78	93
Decatur County Hospital Manchester, 3,762—Delaware Drs Jones and Clark Hosp	Gen Gen	County Part	30 10	12 7	5 3	97 45	606 272	Eldora, 3 5-3—Hardin Iowa Training School for Boys Hospital	Inst	State	29	10			483
Manning, 1,748—Carroll Wyatt Memorial Hospital		NPAssn	20	N	o da	ta sur	plied	Fort Madison, 14,063—Lee Iowa State Penitentiary							
Maquoleta, 4 076—Jackson City Memorial Hospital	Gen	Indiv	20	12	6	52	299	Hospital Glenwood, 4,501—Mills	Inst	State	36	21		• •	510
Marshalltown, 19 240—Marshall Evangelical Deaconess Home								Glenwood State School Harlan, 3,727—Shelby			1,859	1,658		•	109
and Hospital ^o St Thomas Mercy Hosp ^o	Gen	Church Church	150 68	104 50	20 15	407 302	3,034 1,152	Harlan Hospital . Marshalltown, 19,240—Marshall	Gen	Indiv	14	7	5	88	389
Mason City, 27,080—Cerro Gord Park Hospital▲	o Gen	Corp	50	37	12	211	1,495	Iowa Soldiers' Home Hosp Odebolt, 1,350—Sac		State	176	105	٠	•	476
St Joseph's Mercy Hosp AO McGregor, 1,309—Clayton	Gen	Church	175	72	25	466	2 694	Odebolt Hospital Orange City, 1,920—Sioux	Gen	Indiv	8	3	3	26	100
McGregor Hospital Monticello, 2,546—Jones	Gen	Indiv	10	5	3	23	155	Doornink Hospital Postville, 1,194—Allamakee	Gen	Indiv	6	2	1	17	138
John McDonald Hospital Mt Pleasant, 4,610—Henry	Gen	NPAsen	30	23	10	184	620	Postville Community Hosp Red Oak, 5,763—Montgomery Powell School for Backward	Gen	City	15	4	3	34	194
Mt Pleasant State Hospital Muscatine, 18,286—Muscatine	I Ment	State	1,622	1,504			451	and Nervous Children Sac City, 3,165—Sac		Indix	50	45			11
Bellevue Hospital Benjamin Hershey Memoria		NPAssn	42		12		1,170	Sac City Hospital Sioux City, 82,364—Woodbury	Gen	Indiv	10	3	3	14	96
Hospital Nevada 3 353—Story	Gen	NPAssn	50		10		1,360	Torence Crittenton Home Toledo, 2 073—Tama	Mat	NPAs°n	39	25	35	78	£S
Iowa Sanitarium and Hosp New Hampton, 2 933—Chickasa	W	Church	40	14	5	105	429	State Juvenile Home Hosp Waukon, 2,972—Allamakee	Inst	State	32	15		•	297
St Joseph's Hospitals Newton, 10,462—Jasper Mary Frances Shiff Memoria Hospital	Gen il Gen	Church City	51 43	27	9	189	1,163 998	Rominger and Jeffrics Emer gency Hospital Woodward, 895—Dallas	Gen	Part	8	2		6	90
Oakdale —Johnson	тв	State	424	402	•	100	301	Hospital for Epileptics and School for Feebleminded	McDe	State	1 5ა0	1,5^2			159
State Sanatorium+* Oelwein, 7,801—Fayette Mercy Hospital	Gen	Church	30		11	194	933		KANS	2 A 2					
Onawa, 3 438—Monona Onawa Hospital Osceola, 3 281—Clarke	Gen	Indiv	21	8	6	51	419		1717117					~	
Bates Hospital	Gen	Indiv	17	9	4	24	234	Hospitals and Sanatoriums	10 g	Control		age us †	Inets	ber c	<u>.</u> +
Harken Hospital Osceola Hospital Oskaloosa, 11,0°4—Nahaska	Gen Gen	Indiv Indiv	20 20	13 8	6 4	34 90	498 461		Type of Service	O CO	Beds	Average Census †	Bassinets	Number of Births	Admis- elons †
Mercy Hospital Ottumwa 31 570—Wapello	Gen	Part	30	18	5	93	644	Abilene, 5 671—Dickinson Dickinson County Memorial	_			,,			- 0
Ottumwa Hospital St Joseph Hospital	Gen Gen	NPAsen Church	62 86		16 14	2ა1 315	1 720 1,504	Hospital	Gen	NPAssn	30	14	6	160	745
Sunny slope Sanatorium	TB	County	106	76			72	Anthony, 2,873—Harper Galloway Hospital Arkansas City, 12 702—Cowley	Gen	Indiv	32	N		tո «up	plied
kings Paughters Hospit il Pleasanti lle, 895—Marion Community Hospital Rock Rapids, 2 556—I yon W Vander Wilt Hospital Rockwell City, 2891—Calhoun Rockwell City Hospital	Gen	\PAssn		10		101		Mercy Hospital Stricklen Hospital	Gen Gen	NPAssn NPAssn	40 28	13 4	8 5	1°6 5	765 159
Rock Rapids, 2556—I you	Gen	Indiv	10 °0	4		8		Atchison, 12 648—Atchison Atchison Hospital	Gen	NPAssn	45	18	Ð	313	613
Rockwell City, 2,391—Calhoun	Gen Gen	Indiv Part	11	6 7	5 5	42 70	285 285	Atchison Hospital Atchison Hospital Axtell Hospital Ballaylla 2 550 Republic	Gen	Indiv	12	б	5	54	374
Sheldon, 3,768—O Brien Sheldon Good Samaritan Ho		1		•	Ū		200	Patterson Memorial Hosp Beloit 3.765—Mitchell	Gen	Indiv	20	8	4	22	340
pital Shenandoah, 6,846—Page	Gen	Church	16	11		55		Axten Astenia Belleville, 2550—Republic Patterson Memorial Hosp Beloit, 3,765—Mitchell Community Hospital Caldwell, 1,962—Sumner	Gen	NPAssn	49	17	C	155	849
Hand Memorial Hospital Sibley, 2 356—Osceola	Gen	NP 199n		23		209	•	Chanute, 10 142—Neosho	Gen	NPAcen	20	6	5	6,	252
Osceola Hospital Sigourney, 2 %—Keokuk Sigourney Hospital	Gen Gen	Part Indiv	16 11	7 2		42 11		Johnson Hospitalo Coffeyville, 17,355—Montgomer	Gen	Corp	50	15	6	103	944
Slour City, 82,364—Woodbury Tutheran Hospital*	Gen	Church	95	æ	10	306	2,292	Coffeyville General Hospital Medical Center Hospital Southeast Kansas Hospital	Gen	India NP leen NP leen	10 14 23	4 10 9	2 6 5	10S 112	1,148 1,124 80,
Methodist Hospitalo St Joseph Mercy Hosp ** St Vincent's Hospital*	Gen Gen Gen	Church Church Church	109 200 116		16 20 14	ານ 711 322	5 531	Columbus 3 402—Cherokee Maude Norton Memorial Cit		City	19	12	2	3	479
·							-	-					_	-	

			ILL	GI.	SIE	KEL
KANSAS	Conti	nued				
				_	oţ	
o t	Ownership or Control		Average Census †	Bassinets	14 m	يند ال
Hospitals and Sanatoriums ALS	São	Beďs	rera	188	Number Births	Admis- sions †
CORCORDIA, 6.255—Cloud		ñ	₹0	В	Zä	Ad
St. Joseph's Hospital A Gen Council Grove, 2,875—Morris	Church	1 75	57	10	190	1,638
	Indiv	13	4	2	18	-
I Gen	Church		42		247	
E	Charc		4-		211	1,557
pital♣♦ Gen Elkhart, 902—Morton	NPAss	n 50	37	8	248	1,546
Tucker Hospital Gen	Indiv	18	5	4	15	98
Ellsworth, 2,227—Ellsworth Ellsworth Hospital Gen	Corp	39	26	8	140	906
Emporia, 13,185—Lyon Newman Memorial County				Ů	110	200
Hospitalo Gap	County		51	14	267	2,075
St. Mary's Hospital Gen Fort Leavenworth, 4,982—Leavenwo	Church rth	65	30	10	93	1,044
Station Hospital	Army	155	81	5	24	1,632
plinary Barracks Gen Fort Riley, 3,500—Geary	Army	180				
Station Hospital Gen	Army	181	10G	8	108	2,429
Fort Scott, 10,557—Bourbon Mercy Hospital Gen	Church	110	91	10	311	2,760
Garden City, 6,285—Finney St. Catherine's Hospital. Gen	Church	43	28	7	179	
Gardner, 510—Johnson Recce Hospital	Indiv	10				1,524
Girard, 2,554—Crawford			•••		Estab.	
Girard General Hospital Gen Goessel, 300-Marion	City	20	9	4	52	335
Mennopite Bethesda Hosp Gen Goodland, 3,306—Sherman	Church	15	C	5	48	278
Boothroy Memorial Hospital Gen Great Bend, 9,044—Barton	Church	19	11	6	124	549
St Rosa Hospitalia Con	Church	108	80	23	609	3,284
Halstead, 1,397—Harvey Halstead Hospital	Church	160	119	8	40	3,529
Harper, 1,695—Harper Joslin Hospital Gen	Indiv	10	6	4	39	205
Hays, 6,385—Ellis Hays Protestant Hospital Gen	Church	32	9	6	60	368
St. Anthony's Hospital Gen	Church	100	83	22	377	2,849
Herington, 3,804—Dickinson Mercy Hospital Gen	NPAssn	20	10	5	35	200
Hillsboro, 1,580—Marion Salem Hospital Gen	Church	22	12	7	87	420
Hoisington, 3,719—Barton						
Hoisington Hospital Gen Horton, 2,872—Brown	NPAssn		8	3	38	562
Horton Hospital Gen Hutchinson, 30,013—Reno	Part	25	17	6	162	822
Grace Hospitalo	Church Church	107 60	60 39	18 12		2,647
St. Elizabeth Mercy Hosp. Gen Independence, 11,565—Montgomery						1,729
Mercy Hospitalo Gen Iola, 7,244—Allen	Church	56	44	10	136	1,401
St. John's Hospital Gen Junction City, 8,507—Geary	Church	20	12	5	105	693
Junction City Municipal Hos-	City	40	26	9	213	901
pital						
Bell Memorial Hospital Unit Bethany Hospital+A0 Gen Douglass Hospital Gen	Church	126	109	24	575	3,278
Douglass Hospital Gen Grandview Sanitarium N&M	Church	25 37	8 20	3	23	255 209
Grandview Sanitarium N&M Providence Hospital** Gen St. Margaret's Hospital**. Gen	Church Church	85 224	77 144	20 26	491 3	2,534 4,310
University of Kansas Hos- pitals*+40	State	305	250	25		0.584
TB	State	45	27	••	•••	59
Larned, 3,533—Pawnee Larned State Hospital Ment	State	1,450	1,428	••	•••	240
Lawrence, 14,390—Douglas Haskell Institute Hospital Inst	IA	40	5	::		306
Lawrence Memorial Hosp. A. Gen Watkins Memorial Hospital Inst	City State	65 62	23 17	10 		1,439 1,231
Leavenworth, 19,220—Leavenworth	NPAssn	55	27	10	201 1	020.1
St. John's Hospital Gen U. S. Penitentiary Hosp Inst Liberal, 4,410—Seward	Church USPHS	65 193		10	124	981 1,965
Liberal, 4,410—Seward		42	14	9	62	537
Epworth Hospital Gen Little River, 603—Rice Hoffman Memorial Hospital Gen	Church	16	7	2	20	208
Lyons, 4,497—Rice	City					. 1
Lyons, 4,497—Rice Lyons Hospital Gen Manhattan, 11,659—Riley St. Mary Hospital Gen	NPAssn	20	13	6	166	560
St. Mary Hospital Gen Marysville, 4,055—Marshall	Church	50		11		,465
Marysville, 4,055—Marshall Marysville Hospital Gen Randell Hospital Gen	Indiv Indiv	10 16	6 7	4 3	30 52	156 293
McPherson, 7.194—McPherson	County	60	38	10	223 1	,298
McPherson County Hospital Gen Mulyane, 940—Sumner						
Atchison, Topeka and Santa Fe Rallway Hospital Indus	NPAssn	50	25 .	••	•••	356
Fe Railway Hospital Indus Neodesha, 3,376—Wilson Wilson County Hospital Gen	County	30	22	5	132	975
Newton, 11,018—Harvey Axtell Christian Hosp. 10 Gen Bethel Deaconess Hospitalo. Gen	Church	48 62	37 1 54 1	2		446 879
Bethel Deaconess Hospitalo. Gen	Church				s and a	
		,				

KANSAS-Continued

1	к	AN	SAS	Co	ntin	ued				
	Hospitals and Sanatoriu	ms	Type of	Ownership or Control		Is	Average	Bassinets	Number of Births	mis- is t
	Norton, 2,762—Norton					Beds				Admi
	Kenney Memorial Hospit Norton Hospital State Sanatorium for I	uber	. Gen	of Sta City	ate S	Sanat 25	oriun 1	for 3	Tuber G	eulosis 394
-	Norwich, 411—Kingman	••••	. TB	Sta	te	486	40	ŭ .,	•••	320
	Wallace Hospital Oberlin, 1,878—Decatur			Indi	v	9		4	18	106
	Benton Memorial Hospi Osawatomie, 4,145—Miami	tal		Par		14		4 4	50	213
	••		Men Gen	t Stat Cou		1,715	1,65		102	207
	Mercy Hospital	• • • • •				35 28	21		123 142	715 737
	Mercy Hospital	!:: 	:: ::	s NPA		50	28	3		510
	Pi Mt. Carmel Hospital		Gen	Stat		920 75	859 52		190	99 2,055
	Ninnescah Hospitalo			Corr		27	14		67	614
	Sabetha, 2,241—Nemaha St. Anthony Murdock Me morial Hospital*	١-		Chur		100	63			1,527
	Ashury Protestant Hospi	+010	Con	Chur	ch	50	45	15	234	1,444
	St. John's Hospital. Scott City, 1,848—Scott			Chur		70	43			1,335
	Scott City Hospital Spearville, 603—Ford Perkins Hospital			NPA		11	5 7	4	76 33	\$23 \$25
	Stafford, 2,011—Stafford			NPAs Part	ssu	10 25	11	5	97	382
	Sterling, 2.215—Rice			NPAs	sn	20	12	4	41	690
	Sterling Hospital Syracuse, 1,226—Hamilton Donohue Memorial Hosp Topeka, 67,833—Shawnee	ital (Gen	Coun	ty	21	6	4	50	207
	Atchison, Topeka and Sa Fe Railway Hospital	nta	ndus	NPAs	sn	140	99			2,218
	Christ's Hospital Hillcrest Sanatorium Jane C. Stormont Hosp	(len	Chure CyCo	h	95 70	59 44	20		1,840 170
	Menninger Sanitarium+▲	1	N&M	Corp	_	60 60	69 42	20		,929 107 ,587
	St. Francis Hospital+40 Topeka State Hospital Wadsworth, 2,300—Leavenwo	A	dent	Chure State		888 I	77 1,909	15 		303
	Veterans Admin, Facility	4 € T	en B	Vet Vet		679 63	496 56	••	3	,231 124
	Wamego, 1,767—Pottawatom Genn Hospital	ile G	en	City		15	10	5	67	303
	Wellington, 7,246—Sumner Hatcher Hospital St. Luke's Hospital	G	en	NPAss NPAss		30 20	9 5	7 8	75 50	553 335
	Wichita, 114,966—Sedgwick Coffman Hospital	G	en	Corp		15	4	2 1		261 751
	St. Francis Hospital**. Sedgwick County Hospita	G 1,. G	en	Church County		807 80	244 49	43 1, 5	061 S, 58 1,	751 767
	Sedgwick County Tubercule Sanitarium	T	B	County Vet		60 46	196 .		2,	46 171
	Wesley Hospital*▲○ Wichita Hospital*▲○	G	en en	Church Church		35 05			783 5,1 563 3,1	002 250
•	Winfield, 9,506—Cowley St. Mary's Hospital	G	en	Church		50	36	-	03 1,1	
	William Newton Memorial Hospital♣≎	G	en	City	•	47	41 1	0 2	03 1,4	161
Į	Related Institutions Ashland, 1,186—Clark	~	_	NTO 4 nor		10	5	4	77 3	52
3	Ashland Hospital Fort Dodge, 550—Ford Kansas State Soldiers' Hor		:11	NPAsse		10		_	,	63
3	Hospital Lansing, 812—Leavenworth	In	st	State	8	34	17 .	• •		
	Kansas State Penitentiary Hospital Anhattan, 11,659—Riley	In	st	State	Ē	51	30 .		••	10
ין	Kansas State College Hosp Poneka, 67.833—Shawnee	Ins	st :	State		_	14	. •	1,54 21 - 1	y) 2)
	Florence Crittenton Home Vichita, 114,966—Sedgwick Salvation Army Home and	. Ma	it 1	NPAssn			8 19		•	5
	Hospital Suburban Rest Sanitarium.	. Ma		Jhurch ndiv	59 40		27 19 17		. 6	G
T	Vinfield, 9,506—Cowley State Training School			tate	1,317	1,2	16	••	. 10	1
	к	EN		CKY				ų		
		ŧ,	<u> </u>	Control		ige 18	inssincts	ber of	<u>.</u>	•
	Hospitals and Sanatoriums	Type	3617169	or Con	3eds	Avera	Bassl	Num	Adm	
A	nchorage, 690—Jefferson			o o idiv	ស	3	,		103	!
		. N&. Gen		PAssn	100	7:		421		
				P.Aeen	125	20	9 8	Ci	2,72.7	

KENTU	CKY.		inued	!				KENTUCKY—Continued
Hospitals and Sanatoriums	Type of Service	nership Control	Is	Average Census †	Bassinets	Number of Births	Admis- sions †	suminate of Service of Service of Service of Service or Coutrol or Coutrol or Coutrol Bassinets Average Census † Bassinets Admis- of Births
Beverly, 306—Bell	Tyl	0w)	Beds	Ce.	Ba			Lanch 10 000—Harlan
Red Bird Evangelical Hosp.		Church	9	4	4	36	272	Lynch Hospital Gen NPAssn 54 23 4 43 1,596 Madisonville, 8,209—Hopkins
City Hospital Taylor	Gen	City	43	19 4	8 2	63 21	1,295 197	Mayfield, 8,619—Graves
City Hospital Trylor	Gen	NPAssn Indiv	8 32	12	4	48	571	Fuller-Gilliam Hospital Gen Corp 25 13 4 86 784 Mayfield Hospital Gen NPAssn 40 17 6 91 676 Maysville, 6,572—Mason
Covington, 62,018—Kenton Covington-Kenton County		******	0.2		•			Hayswood Hospital Gen NPAssn 55 29 8 133 1,685 Middlesboro, 11,777—Bell
Tuberculosis Sanatorium St. Elizabeth Hospital*▲	Gen	County	17 277	16 217		1,252	5,679	Middlesboro Hospital Gen Corp 50 30 8 107 1,215 Morganfield, 3,079—Union
Wm. Booth Memorial Hosp Cynthiana, 4,840—Harrison Harrison Memorial Hospital	Gen	Church NPAssn	85 35	67 15	20 8	427 94	2,125 460	Union County Hospital Gen NPAssn 35 New building Murray, 3,773—Calloway
Danville, 6,734—Boyle Ephraim McDowell Memorial	Gen	MEMSSH	งบ	10	0	03	400	Keys-Houston Clinic Hosp Gen Part 27 10 8 59 560 Wm. Mason Memorial Hos- pitale
Hognital .	Gen	NPAssn	76	39	8		1,927	pitalo
	Gen	County	100	65			3,003	Owensboro, 30,245—Dayless Owensboro Dayless County
Station Hospital Fort Thomas, 11,034—Campbell		Army Army	259 142	140 86	5 3		3,279 1,304	Hospitalo
Station Hospital Frankfort, 11,492—Franklin Kings Daughters Hospital		NPAssn	75	32			1,707	Ewart Purcell Isolation Hospital Illinois Central Hospital Illinois Central Hospital NPAssn 95 37 2 2 1,727
Fulton, 3,308—Fulton Fulton Hospital Georgetown, 4,420—Scott		Part	12	8	4	50	292	Illinois Central Hospital Indus NPAssn 95 37 2 2 1,727 Riverside Hospital Gen City 83 37 12 432 2,158 Paintsyille, 2,324—Johnson
Georgetown, 4,420—Scott John Graves Ford Memorial		00-	90	10	•	-07	-0-	Paintsville Clinic Gen Indiv 30 5 5 19 353 Paintsville Hospital Gen Corp 65 39 4 65 1,420
•	Gen Gen	CyCo Fed	26 18	16 12	6 7	127 10	595 505	Paris, 6,697—Bourbon W. W. Massie Memorial Hos-
Glasgow, 5,815-Barren T. J. Samson Community	GCII	. cu			•	-0	000	pital 40
Hospital	Gen	NPAssn	51	41	9	101	2,409	Pewee Valley Sanitarium and Hospital
J. Q. Stoyall Memorial Hosp. Greenville, 2,347—Muhlenberg	Gen	Corp	20	10	4	55	471	Pikeville, 4,185—Pike Methodist Hospital Gen Church 90 44 10 140 2,608
Muhknberg Community Hospital	Gen	NPAssn	34	19	6	45	1,058	Pineville, 3,882—Bell Pineville Community Hosp Gen Corp 60 40 4 50 1,230 Richmond, 7,335—Madison
Harlan Hospital	Gen	Corp	75			ta sur	-	Gibson Hospital Gen Indiv 15 8 3 15 362 Irvine-McDowell Memorial
Hartford, 1,385—Ohio		NPAssn	20	8	4	30	450	Trachoma Hospital Trach State 38 21 205 Pattie A. Clay Infirmary Gen NPAssn 50 31 5 51 1,180
Crowder Clinic		Indiv	5	2	1	13	167	Russellville, 3,983—Logan Russellville Hospital Gen Indiv 15 6 4 40 403
Hazard Hospital Hurst-Snyder Hospital Henderson, 13,160—Henderson	Gen	Corp Corp	75 25	41 7	8 5	64 35	2,70S 863	Scottsville, 1,797—Allen Graves Infirmary Gen Indiv 17 6 2 85 263
Henderson Hospital Hopkinsville, 11,724—Christlan	Gen	Corp	38	21	6	93	1,145	Stanford, 1,940—Lincoln Stanford Hospital Gen Part 9 6 2 15 250
Jennic Stuart Memorial Hos- pital		NPAssn	33	24	4	45	1,115	Versailles, 2,548—Woodford Woodford Memorial Hosp Gen CyCo 34 11 6 99 589
Western State Hospital Hyden, 500-Leslie				1,959	••	•••	514	Waverly Hills, 250—Jefferson Waverly Hills Sanatorium A. TB CyCo 501 458 452 Winehester, 8,594—Clark
Frontier Nursing Service Hospital	Gen	NPAssn	18	16	6	103	653	Clark County HospitalGen NPAssn 40 18 6 35 615 Guerrant Clinic and Hospital Gen NPAssn 20 7 4 20 213
Jenkins, 9,428—Letcher Jenkins Hospital	Gen	NPAssn	71	26	6	47	1,047	Related Institutions
Lakeland, 55—Jefferson Central State Hospital Lebanon, 3,786—Marion	Ment	State	2,512	2,470	••	•••	698	Barbourville, 2,420—Knox Logan Hospital Gen NPAssn 20 6 4 16 465
J. A. Baute Memorial Hosp Lexington, 49,304—Fayette	. Gen	Indiv	20	8	4	69	435	Fleming, 1,193—Letcher Fleming Hospital Gen Indiv 30 7 4 222
Eastern State Hospital Good Samaritan Hosp.**	Gen	Church	2,112 263	2,020 210	20	507	759 7,763	Frankfort, 11,492—Franklin State Institution for the
High Oaks Sanatorium Julius Marks Sanatorium St. Joseph Hospital*+40	TB	Indiv County Church	30 103 221	14 114 146	22	605	175 178 5,669	Feebleminded McDe State 769 745 48 Stewart Home Training School McDe Indiv 125 119 14
Shriners Hospital for Crip- pled Children		NPAssn	20	-	•••	•••	87	La Grange, 1,334—Oldham State Reformatory Hospital Inst State 100 32 1.404
U. S. Public Health Service	Drug	USPHS	1,000	934			516	Louisville, 319,077—Jefferson Kings Daughters Home for
L	Ment	Vet India	559 20	541	••	•••	520	Incurables
Toulon 0 non Tour	Gen . Gen	Indiv Indiv	10	12 6	4 2	4 39	363 204	and Hospital
	N&M	Indiv	12	6		•••	53	
Children's Free Hospital	Con	NPAssn NPAssn Church	68 86 130		14 20	246	1,169 2,325	LOUISIANA
Kentucky Baptist Hosp.** Kosair Crippled Children Hospital* Louisville City Hospital** Louisville City Hospital**	Orth	NPAssn	125	101	20		5,363 1,032	Amintochartes of control Contr
Louisvine Acuropating Sana-	•	City	527	382	60	1,426	10,886	Hospitals but state of Scrylco of Scrylco or Control or Control Deds Average Census † Bassincts Number of Births Admis-sions †
torium			24	20	••	250	192	Abbeville, 6,672—Vermilion
Norton Memorial Infirm- ary***	Gen	Church NPAssn	•	63 123	8 25		2,294 4,582	Abberille Clinic
St. Anthony's Hospital**	. Gen . Gen	NPAssn Church	60 138	123 25 116	$\frac{6}{25}$	869 869	406 3,448	Baptist Hospital Gen Church 88 60 10 231 3,415 Culperper-White Clinic Gen Part 12 6 Estab. 1041 Veterans Admin. Facility Gen Vet 400 426 3,727
St. Joseph Infirmary*+A0 SS. Mary and Elizabeth Hos Pltal*A0		Church	340 145	234	25		9,286	Barksdale Field, -Bossler TB Vet 131 97 343
torium (Hazelwood)	TB	Church State	145	107 116		1,293	4,322 309	Station Hospital A Gen Army 160 127 S 66 2,500 City 26 6 6 60 519
Stokes Sanitarium	N&M	Indiv USPHS	40	20 85	::	•••	125 1,502	City 26 6 6 00 519 NPAssn 70 46 18 455 2,647
			K	cv to	svml			eviations is an mana 1071

LOUISI	ANA	Contin	ueđ	LOUISIANA—Continued						
	Ę	· 2			s jo					
Hospitals and Sanatoriums	Type of lervice wnersh	r Control	Beds	Census †	Bassinets Number o	Births Admis-	t suc	Ruston, 7-1012. Undership or Control of Cont		
Our Lady of the Lake Sani-	F.02 O	b hurch 1		:Ö :		⊞ °¥. 77 6,7		Ruston-Lincoln Sanitarium Gen Corn 27		
Bogalusa, 14,604—Washington Elizabeth Sullivan Memorial Hospital	Gen N	PAssn	84	73	16 2	37 3,7	60	Gilmer Chest Hospital TB Part 18 11 84		
Breaux Bridge, 1,668—Saint Mar St. Paul Hospital Carville, 250—Iberville	tin Gen In	div	10	3	2	20 1	.02	North Louisiana Sanitar		
U. S. Marine Hospital Converse, 314—Sabine	Lepro U	SPHS 4	54	366 .		(64	Pines Sanatorium (IP) NPAcer 200 63 14 269 3,121		
Allen Sanitarium Covington, 4,123—St. Tammany	Gen Co	orp	26	5	8 4	15 39	98	Sanitarium*40 Gan Church 150 75 17 207 200		
Fenwick Sanitarium Crowley, 9,523—Acadia	N&M In	div	64	18 .		. 19	96	Shreveport Charity Hospital for Crip-		
Acadia Hospital Crowley Sanitarium (Legion	Gen Pí	irt	12	7	2 7	15 47	70	Pri-State Hospital+16 Orth NPAssn 60 60 200		
Memorial Hospital)		PAssn :	20	3	3 8	33 61	12	Madison Sanitarium		
Delhi Chnic and Sanitarium			12			7 22	23	St Toront Tr. Gen Church 40 8 4 02 1077		
			25		5 14		- 1	Gen Indly 12 5 2 52 430		
Donaldsonville General Hosp. (Ferriday, 2,857—Concordia			9		4 4		1	"Ministrio Sanitarium Gen Corp 25 9 2 27 410		
Ferriday Hospital	on Rouge		28		5 6		1	Related Institutions Alexandria, 27,066—Rapides State Colony and Training		
sis Hospital				88 . 7 .	•		ł	School MeDe State 803 803 32 Angola, 18—West Feliciana		
Hodge, 1,445—Jackson		-	9	5 3	4 3: 3 100		1	Angola General Hospital Inst State 60 40 312 New Orleans, 494,537—Orleans		
Hodge Clinie	en Pa			15 4			- 1	New Orleans Convalescent Home		
Florida Parishes Charity Hospital	en Sta	te 6	9 !	54 11	560	2,434	1	MAINE		
East Louisiana State Hosp. M Parker Hospital			5 4,60 siana)	Type of Service Ownership or Control Backs Number of Bassinets Admis- Admis- sions t		
Lafayette, 19,210—Lafayette Lafayette Charity Hospital 6					_	7,110		Type of Service Ownership or Control Control Mumber Abassinets Bassinets Admiss Admiss alons t		
Lafayette Sanitarium G St. Ann Infirmary G	en Cor	p 2	5	8 4 1 5	96	672	2	Augusta, 19.360—Kennehee		
Lake Charles, 21,207—Calcasieu St. Patrick's Hospital G		irch 73	5 6	0 12	420	2,840	\setminus	Augusta General Hospital. Gen NPAssn 65 45 20 385 1,821 Augusta State Hospital. Ment State 1,633 1,563		
Lecompte. 1,311—Rapides Lecompte Sanitarium G	en Ind	iv 18	3	4 2	82	750	,	Bangor Sanatorium TB NPAssn 30 17 27 Bangor State Hospital Ment State 1,160 1,137 329		
Mansfield, 4,065—De Soto Mansfield Sanitarium G	en Cor	p 3:	2	9 2	26	488		Eastern Maine General Hospital*A		
Marksville, 1,811—Avoyelles Marksville Hospital G Minden, 6,677—Webster	en Ind	iv 11	ı	6 3	69	363		Paine Private Hospital		
Minden Sanitarium G Monroe, 28,309—Ouachita	en Cor	p 27	1	2 4	132	799		Bar Harbor, 4,378—Hancock Mount Desert Island Hosp. A Gen NPAssn 58 30 10 97 1,005 Bath, 10,235—Sagadahoc		
E. A. Conway Memorial Hospital	en Sta				Estab		1	Bath Memorial Hospitalo Gen NPAssn 58 46 12 211 1,403 Belfast, 5.540—Waldo		
G. B. Cooley Sanatorium T Riverside Sanıtarium G	en Indi		11) 4	69	616 616		Bradbury Memorial Hospital Gen NPAssn 15 4 5 7 62 Waldo County General Hose		
St. Francis' Sanitarium. G Vaughan-Wright-Bendel				5 30	565	3,39S 1,005	1	pital 40		
Olinic G. G. G. New Iberia, 13,747—Iberia Dauterive Hospital					224	960	1.	Webber Hospitalo Gen NPAssn 60 54 13 256 1,817		
Iberia General Hospital G	en Indi	v 15		4 3	70	383	(.	Blue Hill, 1,343—Hancock Blue Hill Memorial Hosp Gen NPAssn 25 11 6 33 240		
Charity Hospital*+▲◇ Go	en Stat B Stat		{2,453		5,964	57,936 336	j	Boothbay Harbor, 2,121—Lincoln St. Andrews Hospital Gen Corp 25 7 5 24 217 Brewer, 6,510—Penobscot		
City Hospital for Mental Dis- eases	ent City	100			•••	507	1	Russell Hospital Gen Indiv 13 8 10 200 Brunswick, 7,003—Cumberland		
De Paul Sanitarium No Eye, Ear, Nose and Throat	&M Chu	rch 350	300		•••	479	1	Brunswick Hospital Gen Indiv 50 22 6 Camden, 3,554—Knox		
Hospital+4 El			39			4,307	1	Cape Cottage, 1,025—Cumberland		
Dillard University+4 Go French Hospital Go Hotel Dieu, Sisters' Hosp.*40 Go	n NPA n NPA n Chui	ssn 63	58 29 231	12	186	2,078 1,452 10,720	1	Station Hospital		
Illinois Central Hospital In	dus NEA	ssn 60	28		•••	945	1	Castine, 662—Hancock Castine Community Hospital Gen NPAssn 12 7 6 © 410		
culosis Hospital								Damariscotta, 850—Lincoln Miles Memorial Hospital Gen NPAssn 25 15 7 29 249		
morial*40	n Chu	reh 110	90	24	764	3,444	1	NPAssn 15 5 4 25 192		
Dispensary for Women and Children Ge	n NPA	ssn 58	32	20	458	1,041		Mayo Memorial Hospital Gen City 18 11 4 Eastport, 3,346—Washington 2 26 154		
Richard Milliken Memorial		ch 300	257		1,283 1			Eastport Memorial Hospital Gen 11017 12 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
Go Opelousas, 5,959, வ. காய்யர்	n NPA n USP	ssn 400 HS 572	334 434	••	1,212 1	5,412		Farmington, 3,743—Franklin Farmington, 3,743—Franklin Franklin County Memorial		
St. Landry Clinic Ge St. Rita's Infirmary Ge	n Corp n Part		7 4	5 3	140 36	702 160		Hospitala		
Pineville, 4,297—Rapides Central Louisiana State	nt State	2,350	2,991			523		Gen Corp 18 10 0 5		
Hospital Me Fuqua Memorial Hospital Un Huey P. Long Charity Hosp. Ge		tral Loui	siana 209	State 26	Hosp 741	ital		iquis		
Huey P. Long Charry House	3773.4	ssn 25	7	G	142	715	Gı	Gen NPASSD 24 0 175		
Port Sulphur Hospital Ge	n NPA	sn 10	5	4	34	312	•	Western Maine Sanatorium+A 1B State		
		Ke	y to s	ymbo	us and	aoore	, via	ttions is on page 1071		

	E—C	ontinue	d					MARYL	AND-	Conti	nued	l			
			_		-	oţ	1			<u>0</u> 70			6 C	to	
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis sions †	Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admis sions t
Houlton, 7,771—Aroostook Aroostook General Hospital∘ Madigan Memorial Hosp ∘ Island Falls, 1,370—Aroostook	Gen	NPAssn Church	40 40		12 12	140 110	836 1,237	James Lawrence kernan Hos pital and Industrial Schoo for Crippled Children+▲ Johns Hopkins Hospital*+▲◆	Orth	NPAssn NPAssn	103 894	72 746	75	1,654	243 16,680
Emma V Milliken Memorial Hospital Lewiston, 38,598—Androscoggin	Gen	NPAssn	14	8	5	51	374	Johnston Memorial Chil dren's Hospital Maryland General Hosp *+^ Mercy Hospital*+^		f Union M Church Church	lemor: 238 292	208		629	5,116 8,182
Central Maine General Hos pital** St Mary's General Hosp **	TB	NPAssn NPAssn Church	173 31 150	31	28 25		4,222 63 3,093	Mount Hope Retreato Phipps Psychiatric Clinic Presbyterian Eye, Ear and	N & V	Church f Johns	600	573 ns Ho			108
Mars Hill, 1,886—Aroostook							120		ENT	Church	40	8			1,805
Mars Hill Hospital Milo, 3,000—Piscataquis	Gen	Indiv	10	4	3	17	i	Free Dispensary*+A0	Gen	NPAssn	134	102			
McNaughton Hospital Old Town, 7,688—Penobscot	Gen	Indiv	12	5	6	27	263	St Agnes' Hospital*+40 St Joseph's Hospital*+40	Gen Gen	Church Church	220 253	140 213	28 46	729 1,211	
Home Private Hospital	Gen	Corp	13	No	o đa	ta sur	plied		Gen	NPAssn	260		40	843	
Portland, 73,643—Cumberland Children's Hospital♣○	Chil	NPAssn	100	77			429	Hospital*+▲0	Gen	NP4sen	153	111	17	480	3,448
Farrington Hospital		City	186	151		99 78	1,756 402	Sydenham Hospital+ Union Memorial Hosp *+40	Iso Gen	City NPAssn	110 344	56 277	24	528	1,362 7,281
Dr Leighton's Private Hosp Maine Eye and Ear Infirm	Gynob	maiv	14	11	12			U S Marine Hospital*▲	Gen	USPHS	531	422			5 597
ary≜≎ Maine General Hospital*≜≎		NPAssn NPAssn	100 254	116 228	20 27		4,149 6,087	University Hospital*+40 West Baltimore General Hos	Gen	State	435	875	50	1,453	9,289
Queen's Hospital	Gen	Church	52		12	118	80a	pital*+≜≎	Gen	NP 4 sn	151	110	23	578	3,991
State Street Hospital* U S Marine Hospital*	Gen Gen	Corp USPHS	61 72	53 53	12	135	1,557 611	Brentwood, 2,433—Prince George Brentwood Sanatorium	s N&U	Corp	38	χ.	Λđο	ta sur	nnlied
Presque Isle, 7,939—Aroostook	Gen	061 115	12	00				Brunswick, 3,856—Frederick		COLL				-	
Northern Maine Sanatorium Presque Isle General Hosp Rockland, 8,899—knov	TB Gen	State NPAssn	125 50	114 29	10	141	151 1,002	Schnauster Hospital Cambridge, 10,102—Dorchester Cambridge Maryland Hospital	Gen	Indiv NPAssn	30 73	13 38	5	199	452
Anox County General Hos pital≜≎	Gen	NPA 9sn	64	36	7	110	1,046	Eastern Shore State Hospital	Gen Vent	State	500	455	17	199	1,116 161
Rumford, 10,230—Oxford Rumford Community Hos								Catonsville, 7,647—Baltimore Haarlem Lodge	изл	Indiv	50	43			147
pital.	Gen	NPAssn	68	41	8	237	1,658	Spring Grove State Hosp +			2,100	2,077			612
Sanford, 14,886—York Henrietta D Goodall Hosp	Gen	NPAssn	42	32	8	117	1,142	Chestertown, 2,760—Kent Kent and Upper Queen Anne's							
Skowhegan, 7,159—Somerset Redington Memorial Hosp	Gen	NPAssn	30	20	5	41	536	General Hospital Crisfield, 3,908—Somerset	Gen	NP4een	31	12	8	83	445
Togus, 2,350—Kennebec						7.		Edward W McCready Me							
Veterans Admin Facility ▲ Waterville, 16 688—Kennebec	Gen	Vet	300	234			1,418	morial Hospital Crownsville, 30—Anne Arundel	Gen	County	36	17	5	72	431
Sisters Hospital▲◆	Gen	Church	120	97	20 6	376 93	5,653 1,094	Crownsville State Hospital	Ment	State	1,348	1,479			499
Thayer Hospital ⁴ Westbrook 11,087—Cumberland		NPAssn	34	26			-	Hospital for Colored Feeble minded Children	Unit o	f Crowns	ville S	tate E	Iosp	ital	
Westbrook Hospital	Gen	NPAssn	22	10	8	120	680	Cumberland, 39,483—Allegany Allegany Hospital of the	C	Observati					0.004
Related Institutions								Sisters of Charity.	Gen						
Related Institutions Auburn, 19,817—Androscoggin								Memorial Ho∘pital▲≎	Gen	Church CyCo	110 166	89 123	33 30	641 554	
Auburn, 19,817—Androscoggin Auburn Private Hospital	Gen	Indiv	10	2	4	42	131	Memorial Hospital♣≎ Easton, 4,528—Talbot	Gen	CyCo	166	123	30	554	4,029
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital	Gen N&M		10 18	2 10	4	42	131 148	Memorial Hospital A C Easton, 4,528—Talbot Emergency Hospital A C Edgewood, 300—Harford	Gen Gen	CyCo NPAssn	166 107	123 70	30	554	4,029 2,367
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Buyton Holls Hospital					4	42 •		Memorial Hospital ♣♦ Easton, 4,528—Talbot Emergency Hospital ♣♦ Edgewood, 300—Harford Station Hospital	Gen	CyCo	166	123	30	554	4,029
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Buxton Hollis Hospital Eagle Lake 1,891—Aroostook	N&M Gen	Indiv	18	10			148	Memorial Hospital&≎ Easton, 4,528—Talbot Emergency Hospital&≎ Edgewood, 300—Harford Station Hospital Elkton, 3518—Cecil Union Hospital of Cecil	Gen Gen Gen	CyCo NPAssn Army	166 107 56	123 70 23	30 21	554 224	4,029 2,367 75,
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gaz Private Hospital Bar Mills, 400—York Buxton Holls Hospital Eagle Lake 1,891—Aroostook Northern Malne General Ho pital	N&M Gen	Indiv	18	10			148	Memorial Hospital& Easton, 4,528—Talbot Emergency Hospital& Edgewood, 300—Harford Station Hospital Elkton, 3 518—Cecil Union Hospital of Cecil County Fort George G Meade, —Anne	Gen Gen Gen Gen Tundel	CyCo NPAssn Army NPAssn	166 107 56 52	123 70	30	554 224 315	4,029 2,367 75,
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Buxton Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 570—Cumberland Pownal State School	N&M Gen S	Indiv Corp Church	18 15	10 5 24			148 138	Memorial Hospital&O Easton, 4,528—Talbot Emergency Hospital&O Edgewood, 300—Harford Station Hospital Elkton, 3 518—Cecil Union Hospital of Cecil County Tort George G Meade, —Anne 4 Station Hospital&	Gen Gen Gen Gen	CyCo NPAssn Army NPAssn	166 107 56	123 70 23	30 21	554 224 315	4,029 2,367 75,
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Buyton Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 570—Cumberland	N&M Gen S	Indiv Corp Church State	18 15 45	10 5 24			148 138 704	Memorial Hospital& Easton, 4,528—Talbot Emergency Hospital& Edgewood, 300—Harford Station Hospital Elkton, 3 518—Cecil Union Hospital of Cecil County Port George G Meade, —Anne 4 Station Hospital& Frederick, 15,802—Frederick Emergency Hospital	Gen Gen Gen Gen Tundel Gen Gen	CyCo NPAssn Army NPAssn	166 107 56 52	123 70 23 35 65	30 21 S	554 224 315	4,029 2,367 75,
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Buxton Holls Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knox Jones Sanitarium Van Buren, 5,880—Aroostook	N&M Gen S Gen MeDe N&M	Indiv Corp Church State Corp	18 15 45 1,120 30	10 5 24 1,084	2	9	148 138 704 57 21	Memorial Hospital& Easton, 4,528—Talbot Emergency Hospital& Edgewood, 300—Harford Station Hospital Elkton, 3 518—Cecil Union Hospital of Cecil Counts Fort George G Meade, —Anne 4 Station Hospital& Frederick, 15,802—Frederick Emergency Hospital& Frederick City Hospital& Frostburg, 7,630—Allegans	Gen Gen Gen rundel Gen Gen Gen	CyCo NPAssn Army NPAssn Armt County NPAssn	166 107 56 52 113 47 125	123 70 23 35 65 28 64	30 21 S 5 10 13	554 224 315 27 247 228	4,029 2,367 75, 1,109 1,382 605 2,339
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Buxton Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knox Jones Sanitarium Van Buren, 5,380—Aroostook Hotel Dieu Hospital York Village, 1,500—York	N&M Gen S Gen MeDe N&M Gen	Indiv Corp Church State Corp Church	18 15 45 1,120 30	10 5 24 1,084 15	2	9 .	148 138 704 57 21 333	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Umon Hospital of Cecil Count; Fort George G Meade,Anne & Station HospitalA Frederick, 15,802-Frederick Emergency HospitalA Frederick City HospitalA Frostburg, 7,630-Allegan; Miners Hospital Glenn Dale, 205-Prince Georges	Gen Gen Gen Gen Tundel Gen Gen	CyCo NPAssen Army NPAssen Army	166 107 56 52 113	123 70 23 35 65	30 21 S 5 10 13	554 224 315 27	4,029 2,367 75, 1,109 1,382
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Buyton Holls Hospital Eagle Lake 1,891—Aroostook Aorthern Maine General Ho pital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,380—Aroostook Hotel Dieu Hospital	N&M Gen S Gen MeDe N&M	Indiv Corp Church State Corp	18 15 45 1,120 30	10 5 24 1,084	2	9	148 138 704 57 21	Memorial Hospital& Easton, 4,528—Talbot Emergency Hospital& Edgewood, 300—Harford Station Hospital Elkton, 3 518—Cecil Union Hospital of Cecil Counts Fort George G Meade, —Anne 4 Station Hospital& Frederick, 15,802—Frederick Emergency Hospital Frederick City Hospital& Frostburg, 7,630—Allegans Miners Hospital Glenn Dale, 205—Prince Georges Glenn Dale Sanatorium	Gen Gen Gen rundel Gen Gen Gen Gen Gen Gen	CyCo NPAssn Army NPAssn Armt County NPAssn	166 107 56 52 113 47 125 39	123 70 23 35 65 28 64 23	30 21 S 5 10 13	554 224 315 27 247 228	4,029 2,367 75, 1,109 1,382 605 2,339
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Button Hollis Hospital Eagle Lake 1,891—Aroostook Aorthern Maine General Hopital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,880—Aroostook Hotel Dieu Hospital York Yillage, 1,500—York York Hospital	N&M Gen S Gen MeDe N&M Gen	Indiv Corp Church State Corp Church NPAssn	18 15 45 1,120 30	10 5 24 1,084 15	2	9 .	148 138 704 57 21 333	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Union Hospital of Cecil County Fort George G Meade, -Anne 4 Station Hospital& Frederick, 15,802-Frederick Emergency Hospital& Frederick City Hospital& Frostburg, 7,639-Allegany Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washingto Washington County Hosp Ao	Gen Gen Gen Tundel Gen Gen Gen Gen Gen Gen	CyCo NPAssn Army NPAssn Army County NPAssn State	166 107 56 52 113 47 125 39	123 70 23 35 65 28 64 23	30 21 S 5 10 13	554 224 315 27 247 228 140	4,029 2,367 75, 1,109 1,382 605 2,339
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Button Hollis Hospital Eagle Lake 1,891—Aroostook Aorthern Maine General Hopital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,880—Aroostook Hotel Dieu Hospital York Yillage, 1,500—York York Hospital	N&M Gen S Gen MeDe N&M Gen	Indiv Corp Church State Corp Church NPAssn	18 15 45 1,120 30	10 5 24 1,084 15	2	9	148 138 704 57 21 333 785	Memorial HospitalAo Easton, 4,528-Talbot Emergency HospitalAo Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cccil Union Hospital of Cecil County Fort George G Meade, —Anne 4 Station HospitalA Frederick, 15,802-Frederick Emergency HospitalA Frederick City HospitalAo Frostburg, 7,639-Allegany Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washingto Washington County Hosp Ao Washington	Gen Gen Gen rundel Gen Gen Gen Gen Gen See W n Gen	CyCo APAcen Army APAcen Army County APAcen State achington MPAcen	166 107 56 52 113 47 125 39 1, D (142	123 70 23 35 65 28 64 23	30 21 8 5 10 13 10	554 224 315 27 247 228 140	4,029 2,367 75, 1,109 1,382 605 2,339 877
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Button Hollis Hospital Eagle Lake 1,891—Aroostook Aorthern Maine General Hopital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,880—Aroostook Hotel Dieu Hospital York Yillage, 1,500—York York Hospital	Gen S Gen MeDe A&M Gen Gen	Indiv Corp Church State Corp Church NPAssn	18 15 45 1,120 30	10 5 24 1,084 15 10 7	2 4 7	9	148 138 704 57 21 333 785	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Union Hospital of Cecil Counts Fort George G Meade, —Anne 4 Station Hospital Frederick, 15,802-Frederick Emergency Hospital Frederick City Hospital& Frostburg, 7,639-Allegans Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washingto Washington County Hosp Ao Havre de Grace, 4,967-Harford Harford Memorial Hospital Henryton, 30-Carroll	Gen Gen Gen rundel Gen Gen Gen Gen Gen See W n Gen	CyCo NPAssn Army NPAssn Army County NPAssn State nshingtor	166 107 56 52 113 47 125 39	123 70 23 35 65 28 64 23	30 21 S 5 10 13	554 224 315 27 247 228 140	4,029 2,367 75, 1,109 1,382 605 2,339 877
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Buxton Holls Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knox Jones Sanitarium Van Buren, 5,880—Aroostook Hotel Dieu Hospital York Village, 1,500—1 ork 1 ork Hospital	Gen S Gen MeDe A&M Gen Gen	Indiv Corp Church State Corp Church NPAssn	18 15 45 1,120 30 10 21	10 5 24 1,084 15 10 7	2 4 7	9	148 138 704 57 21 333 785	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Umon Hospital of Cecil Count; Fort George G Meade,Anne & Station HospitalA Frederick, 15,802-Frederick Emergency HospitalA Frederick City HospitalA Frostburg, 7,630-Allegan; Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washingto Washington County Hosp Ao Havre de Grace, 4,967-Harford Harford Memorial Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium	Gen Gen Gen rundel Gen Gen Gen Gen Gen See W n Gen	CyCo APAcen Army APAcen Army County APAcen State achington MPAcen	166 107 56 52 113 47 125 39 1, D (142	123 70 23 35 65 28 64 23	30 21 8 5 10 13 10	554 224 315 27 247 228 140	4,029 2,367 75, 1,109 1,382 605 2,339 877
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Button Hollis Hospital Eagle Lake 1,891—Aroostook Aorthern Maine General Hopital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,880—Aroostook Hotel Dieu Hospital York Yillage, 1,500—York York Hospital	Gen Gen MeDe AM Gen Gen	Indiv Corp Church State Corp Church NPAssn	18 15 45 1,120 30	10 5 24 1,084 15 10 7	2	9	148 138 704 57 21 333 785	Memorial Hospital& Easton, 4,528—Talbot Emergency Hospital& Edgewood, 300—Harford Station Hospital Elkton, 3 518—Cecil Union Hospital of Cecil Counts Fort George G Meade, —Anne 4 Station Hospital& Frederick, 15,802—Frederick Emergency Hospital Frederick City Hospital& Frostburg, 7,630—Allegans Miners Hospital Glenn Dale, 205—Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491—Washingto Washington County Hosp Ao Havre de Grace, 4,967—Harford Harford Memorial Hospital Henryton, 30—Carroll Maryland Tuberculosis Sana torium Jamsville, 200—Frederick	Gen Gen Gen rundel Gen Gen Gen Gen Gen See W n Gen Gen	CyCo NPAcen Army NPAcen Army County NPAcen State nebington NPAcen NPAcen State	166 107 56 52 113 47 125 39 2, D (142 40	123 70 23 35 65 28 64 23 70 21	30 21 8 5 10 13 10	554 224 315 27 247 228 140	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Button Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Hopital Pownal, 570—Cumberland Pownal, 570—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,380—Aroostook Hotel Dieu Hospital York Yillage, 1,500—York York Hospital	Gen Gen MeDe N&M Gen Gen Gen HARY	Church State Corp Church NPAssn LAND	18 15 45 1,120 30 10 21	7 Vactage Vact	2 4 7	9 .	148 138 704 57 21 333 785	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Umon Hospital of Cecil County Fort George G Meade,Anne & Station Hospital& Frederick, 15,802-Frederick Emergency Hospital& Frederick City Hospital& Frederick City Hospital& Frederick City Hospital& Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washingto Washington County Hosp & Havre de Grace, 4,967-Harford Harford Memorial Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Ijamsville, 200-Frederick Riggs Cottage Sanitarium La Plata, 488-Charles	Gen Gen Gen Tundel Gen Gen Gen Gen Gen Gen Gen Th Gen	CyCo NPAcsn Army NPAcsn Army County NPAcsn State nchingtor NPAcsn NPAcsn State Indiv	166 107 56 52 113 47 125 39 142 40 500 30	123 70 23 35 65 26 64 23 101 21 374 26	30 21 8 5 10 13 10 27 6	554 224 315 27 247 228 140 461 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Button Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Hopital Pownal, 575—Cumberland Pownal, 575—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,380—Aroostook Hotel Dieu Hospital York Village, 1,500—1 ork York Hospital Mespitals and Sanatoriums Aberdeen Proving Ground,—H Station Hospital Annapolis, 13 695—Anne Arund	Gen S Gen MeDe N&M Gen Gen HARY: To odal Larlord Gen arford Gen	Indiv Corp Church State Corp Church NPAssn	18 15 45 1,120 30 10 21	10 5 24 1,084 15 10 7	2 4 7	9	148 138 704 57 21 333 785	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Umon Hospital of Cecil Count; Fort George G Meade,Anne & Station HospitalA Frederick, 15,802-Frederick Emergency HospitalA Frederick City HospitalA Frostburg, 7,630-Allegan; Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washingto Washington County Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Jiamsville, 200-Frederick Riggs Cottage Sanitarium La Plata, 485-Charles Physicians Memorial Hospital Laurel, 2 823-Prince Georges	Gen Gen Gen rundel Gen Gen Gen Gen Gen See W n Gen Gen	CyCo NPAcen Army NPAcen Army County NPAcen State nebington NPAcen NPAcen State	166 107 56 52 113 47 125 39 2, D (142 40	123 70 23 35 65 28 64 23 70 21	30 21 8 5 10 13 10	554 224 315 27 247 228 140	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Burton Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Hopital Pownal, 570—Cumberland Pownal, 570—Cumberland Pownal, 570—Cumberland Pownal, 570—Cumberland Pownal, 570—Cumberland Pownal, 578—Anostook Union, 1,150—Anox Jones Sanitarium Van Buren, 5,380—Aroostook Hotel Dieu Hospital York Village, 1,500—York York Hospital Monapolis, 13 009—Anne Arund Annapolis, 13 009—Anne Arund Annapolis, 13 009—Anne Arund Annapolis, 13 009—Anne Arund Annapolis Emergency Hospital	Gen Gen MeDe N&M Gen Gen IARY: arford Gen el Gen	Indiv Corp Church State Corp Church NPAssn LAND Glystanan Army NPAssn	18 15 45 1,120 30 10 21	10 5 5 24 142 145 15 16 17 17 17 17 17 17 17 17 17 17 17 17 17	2 4 7	9	148 138 704 57 21 333 785 sjimpy 192 2,392	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cccil Umon Hospital of Cecil Count; Fort George G Meade,Anne 4 Station Hospital& Frederick, 15,802-Frederick Emergency Hospital& Frederick, City Hospital& Froderick, City Hospital& Frostburg, 7,6,39-Allegan; Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-W ashingto Washington County Hosp 40 Hayre de Grace, 4,967-Harford Harford Memorial Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Jiamsville, 200-Frederick Riggs Cottage Sanitarium La Plata, 488-Charles Physicians Memorial Hosp Laurel, 2 823-Prince Georges District Training School Laurel Sanitarium	Gen Gen Gen Tundel Gen Gen Gen Gen Gen Gen TB N&M Gen See W	CyCo NPAcsn Army NPAcsn Army County NPAcsn State nchingtor NPAcsn NPAcsn State Indiv	166 107 56 52 113 47 125 39 20, D (142 40 500 30 23	123 70 23 35 65 26 64 23 101 21 374 26	30 21 8 5 10 13 10 27 6	554 224 315 27 247 228 140 461 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Buxton Holls Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,880—Aroostook Hotel Dieu Hospital York Village, 1,500—York York Hospital Anapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis Emergency Hos pital U S Naval Hospital*A Baltimore, 8.J.100—Baltimore	Gen Gen Gen Gen Gen JAN Gen Gen Gen Gen Gen Gen Gen Ge	Church State Corp Church NPAssn LAND Gigstand O Arms NPAssn	18 15 45 1,120 30 10 21 12 Est	10 5 24 12 14 15 16 17 17 17 17 17 17 17 17 17 17 17 17 17	2 Bassinets 2 7	Number of 12 55 14 15 15 15 15 15 15 15 15 15 15 15 15 15	148 138 704 57 21 333 785 8jmpy 192 2,302 1,876	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Statuon Hospital Elkton, 3 518-Cccil Union Hospital of Cecil County Fort George G Meade, —Anne a Station Hospital& Frederick, 15,802-Frederick Emergency Hospital Frederick City Hospital& Frostburg, 7,639-Allegany Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washingto Washington County Hosp & Havre de Grace, 4,967-Harford Harford Memorial Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Liams ulle, 200-Frederick Riggs Cottage Sanitarium La Plata, 488-Charles Physicians Memorial Hosp Laurel, 2 823-Prince Georges District Training School Laurel Sanitarium Leonardtown, 668-St Marys St Mary's Hospital	Gen Gen Gen Tundel Gen Gen Gen Gen Gen Gen TB N&M Gen See W	CyCo NPAcen Army NPAcen Army County NPAcen State nehington NPAcen MPAcen State Indiv County achington	166 107 56 52 113 47 125 39 142 40 500 23 1, D 0	123 70 23 35 65 28 64 23 101 21 374 26 12	30 21 8 5 10 13 10 27 6	554 224 315 27 247 228 140 461 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005 543 21 468
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Burton Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 576—Cumberland Pownal, 576—Cumberland Pownal, 576—Cumberland Pownal, 576—Cumberland Pownal, 576—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,380—Aroostook Hotel Dieu Hospital 1 ork Village, 1,500—1 ork 1 ork Village, 1,500—1 ork 1 ork Hospital Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis Emergency Hos pital U S Naval Hospital* Baltimore, Sa.J.100—Baltimore Baltimore City Psycho pathle Hospital	Gen Gen Gen Gen Gen Gen IARY: Gen Gen Gen Gen Gen Gen City Gen Unit	Indiv Corp Church State Corp Church NPAssn LAND Glystanan Army NPAssn	18 15 45 1,120 30 10 21 12 85 192 1,305	10 5 24 24 15,084 15 10 7 7 Consens + Consens	2 4 7 Basslucts 7 15 80	Number of	148 138 704 57 21 333 785 sjimpy 192 2,392	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cccil Union Hospital of Cecil County Fort George G Meade, —Anne a Station Hospital& Frederick, 15,802-Frederick Emergency Hospital Frederick City Hospital& Froderick City Hospital& Frostburg, 7,6.39-Allegany Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-W ashingto Washington County Hosp & Havre de Grace, 4,967-Harford Harford Memorial Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Jamsville, 200-Frederick Riggs Cottage Sanitarium La Plata, 488-Charles Physicians Memorial Hosp Laurel, 2 823-Prince Georges District Training School Laurel Sanitarium Leonardtown, 668-St Marys St Mary's Hospital Mount Wilson, 225-Baltimore Mt Wilson Branch, Mary land Tuberculosis Sana	Gen Gen Gen Tundel Gen	CyCo NPAcen Army NPAcen Army County NPAcen State nehingtor NPAcen State Indiv County achingtor Indiv	166 107 56 52 113 47 123 39 0, D (142 40 500 23 31, D 73	123 70 23 35 65 28 64 23 70 101 21 374 26 12 C 68	30 21 8 5 10 13 10 27 6	554 224 315 27 247 228 140 461 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005 543 21 463 320
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Button Hollis Hospital Eagle Lake 1,891—Aroostook Aorthern Maine General Ho pital Pownal, 576—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,880—Aroostook Hotel Dieu Hospital York Village, 1,500—York York Hospital Anapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis Energency Hos pital U S Naval Hospital* Baltimore City Hospitals* Baltimore City Fsycho nathle Hospital Baltimore City Tuberculosis	Gen Gen Gen Gen Gen IARY: Journal Gen City Gen City Gen Unit Unit Sunt	City	18 15 45 1,120 30 10 21 12 80 192 1,300 TO C.	10 5 24 1,084 15 10 7 VACURE CORR + 10 3 43 79 957 957 Hotelsty	2 Basslucts 2 4 5 80 spit	23 71 Blrths of 1,9 %	148 138 704 57 21 333 785 8jmpy 192 2,302 1,876	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Umon Hospital of Cecil Count; Fort George G Meade,Anne & Station HospitalA Frederick, 15,802-Frederick Emergency HospitalA Frederick, City HospitalA Frederick, City HospitalA Frostburg, 7,630-Allegany Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washingto Washington County Hosp Ao Havre de Grace, 4,907-Harford Harford Memorial Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Jiamsville, 200-Frederick Riggs Cottage Sanitarium La Plata, 489-Charles Physicians Memorial Hosp Laurel, 283-Prince Georges District Training School Laurel Sanitarium Leonardtown, 668-St Mary's St Mary's Hospital Mount Wilson, 223-Baltimore Mt Wilson, 223-Baltimore Mt Wilson Branch, Mary Jand Tuberculosis Sana torium	Gen Gen Gen Tundel Gen Gen Gen Gen See W n TB A&M Gen See See Sex Sex Sex Sex Sex	CyCo NPAcen Army NPAcen Army County NPAcen State nehingtor NPAcen State Indiv County achingtor Indiv	166 107 56 52 113 47 123 39 0, D (142 40 500 23 31, D 73	123 70 23 35 65 28 64 23 70 101 21 374 26 12 C 68	30 21 8 5 10 13 10 27 6	554 224 315 27 247 228 140 461 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005 543 21 463 320
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Buxton Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Hopital Pownal, 575—Cumberland Pownal, 575—Aroostook Hotel Dieu Hospital Oork Village, 1,500—1 ork York Hospital Monapolis, 13 065—Anne Arund Annapolis, 13 065—Anne Arund Annapolis, 13 065—Anne Arund Annapolis, 13 065—Anne Arund Annapolis, 13 065—Alamore Baltimore, 52,100—Baltimore Baltimore City Psycho pathe Hospital Baltimore City Tuberculosi Hospital Baltimore City Tuberculosi Hospital Baltimore Eye, Ear and Thr	Gen Gen Gen Gen Gen Gen IARY: Online Gen City Corp Church State Corp Church NPAssn LAND Gigstana O Arms NAvy City of Baltim of Baltim	18 15 45 1,120 30 10 21 12 80 192 1,300 pore C.	10 5 5 24 142 7 1680,1 17 17 17 17 17 17 17 17 17 17 17 17 17	2 Basslucts 2 4 5 80 spit	23 71 Blrths of 1,9 %	148 138 704 57 21 333 785 sjimpy 192 2,392 1,576 7,438	Memorial Hospital& Easton, 4,528—Talbot Emergency Hospital& Edgewood, 300—Harford Station Hospital Elkton, 3 518—Cecil Umon Hospital of Cecil Count; Fort George G Meade, —Anne de Station Hospital& Frederick, 15,802—Frederick Emergency Hospital& Frederick, City Hospital& Frederick, City Hospital& Froderick, City Hospital& Frostburg, 7,6,39—Allegany Miners Hospital Glenn Dale, 205—Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491—Washingto Washington County Hosp & Hayre de Grace, 4,957—Harford Harford Memorial Hospital Henryton, 30—Carroll Maryland Tuberculosis Sana torium Jamsyille, 200—Frederick Riggs Cottage Sanitarium La Plata, 485—Charles Physicians Memorial Hosp Laurel, 2 823—Prince Georges District Training School Laurel Sanitarium Leonardtown, 668—St Marys St Mary's Hospital Wount Wilson, 225—Baltimore Mt Wilson Branch, Mary land Tuberculosis Sana torium Olney, 100—Montgomery Montgomery County Genera	Gen Gen Gen Tundel Gen Gen Gen Gen Gen TB A&M Gen Sec W A&V Gen	CyCo NPAcen Army NPAcen State achington NPAcen State Indiv County Army State Indiv County Achington NPAcen State Indiv County Achington NPAcen State Indiv County State Indiv County State State State	166 107 56 52 113 47 125 39 6, D C 142 40 500 23 11, D C 20 210	123 70 23 35 65 28 64 23 101 21 374 26 62 12	30 21 8 5 10 13 10 27 6	554 224 315 27 247 248 140 401 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005 543 21 468 320 529	
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Burton Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 576—Cumberland Pownal, 576—Cumberland Pownal, 576—Cumberland Pownal, 576—Cumberland Pownal, 576—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,380—Aroostook Hotel Dieu Hospital Ork Village, 1,500—York York Village, 1,500—York York Hospital Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis Emergency Hos pital Baltimore, Sa.J.100—Baltimore Baltimore City Hospitals** Baltimore City Tycho pathle Hospital Baltimore City Tuberculosis Hospital Baltimore Eye, Ear and Thr Charity Hospital+A Beek Diagnostic Clinic	Gen Gen Gen Gen Gen IARY: Jogan Gen Gen City Gen City Gen Unit ENT Gen	Church State Corp Church NPAssn LAND Gigstanao Arms Navy City of Baltim NPAssn NPAssn Navy The Corp NPAssn Navy City NPAssn Navy NPAssn	18 15 45 45 1,120 30 10 21 12 80 192 1,300 ore C. 60 60 12	10 5 24 12 26,01 27 28 20 20 20 20 20 20 20 20 20 20 20 20 20	2 4 7 Busslucts 7 4 50 cspit	. 9 . 23 71 Numper of 1,9 % als tals	148 138 704 57 21 333 785 8jmpy 192 2,392 1,576 7,408	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cccil Umon Hospital of Cecil County Fort George G Meade, —Anne a Station Hospital& Frederick, 15,802-Frederick Emergency Hospital& Frederick, City Hospital& Frederick, City Hospital& Froderick, City Hospital& Frostburg, 7,639-Allegany Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-W ashingto Washington County Hospi & Hayerstown, 32,491-W ashingto Washington County Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Jiamsville, 200-Frederick Riggs Cottage Sanitarium La Plata, 488-Charles Physicians Memorial Hospital Laurel, 2 823-Prince Georges District Training School Laurel Sanitarium Leonardtown, 668-St Marys St Mary's Hospital Wount Wilson, 225-Baltimore Mt Wilson Branch, Mary land Tuberculosis Sana torium Olney, 100-Montgomery Montgomery County General Hospital Perry Point, 50-Cccil	Gen Gen Gen Tundel Gen	CyCo NPAcen Army NPAcen Armit County NPAcen State nebingtor NPAcen State India County achingtor India NPAcen State	166 107 52 113 47 122 39 142 40 500 23 210 40	123 70 23 35 65 28 64 23 70 101 21 374 26 12 C 68 12	30 21 8 5 10 13 10 27 6	554 224 315 27 247 248 140 401 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005 543 21 468 320 529 223 1,423
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Button Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,380—Aroostook Hotel Dieu Hospital York Yillage, 1,500—York York Hospital Annapolis, 13 (693—Anne Arund Annapolis, 13 (693—Anne Arund Annapolis Emergency Hos pital U S Naval Hospital* Baltimore, SaJ,100—Baltimore Baltimore City Hospitals* Baltimore City Tuberculosis Hospital Baltimore City Tuberculosis Hospital Baltimore Eye, Ear and Thr Charity Hospital+4	Gen Gen Gen Gen Gen Gen Gen Gen	Corp Church State Corp Church NPAssn LAND Giggson O Arms NPAssn Navy City of Baltim of Baltim NPAssn	18 15 45 1,120 30 10 21 12 So 192 1,30 ore C 12 12 12 12 12 12 12 12 12 12 12 12 12	10 5 24 12 26,01 27 28 20 20 20 20 20 20 20 20 20 20 20 20 20	2 Basslucts 7 4 7 Society 25	. 9 . 23 71 Numper of 1,9 % als tals	148 138 704 57 21 333 785 8suppy 192 2,392 1,576 7,438	Memorial Hospital& Easton, 4,528—Talbot Emergency Hospital& Edgewood, 300—Harford Statuon Hospital Elkton, 3,518—Cccil Union Hospital of Cecil County Fort George G Meade, —Anne a Station Hospital& Frederick, 15,802—Frederick Emergency Hospital& Frederick City Hospital& Frederick City Hospital& Frostburg, 7,6,30—Allegany Miners Hospital Glenn Dale, 205—Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491—Washingto Washington County Hosp & Havre de Grace, 4,967—Harford Harford Memorial Hospital Henryton, 30—Carroll Maryland Tuberculosis Sana torium Ijamsville, 200—Frederick Riggs Cottage Sanitarium La Plata, 488—Charles Physicians Memorial Hospital Laurel, 2,823—Prince Georges District Training School Laurel Sanitarium Leonardtown, 668—St Marys St Mary's Hospital Mount Wilson, 223—Baltimore Mt Wilson Branch, Mary land Tuberculosis Sana torium Olney, 100—Montgomery Montgomery County General Hospital Perry Point, 50—Cccil Veterans Admin Facility& Prince Frederick, 500—Calvert	Gen Gen Gen Tundel Gen Gen Gen Gen Gen TB A&M Gen Sec W A&V Gen	CyCo NPAcen Army NPAcen State achington NPAcen State Indiv County Army State Indiv County Achington NPAcen State Indiv County Achington NPAcen State Indiv County State Indiv County State State State	166 107 56 52 113 47 125 39 6, D C 142 40 500 23 11, D C 20 210	123 70 23 35 65 28 64 23 70 101 21 374 26 12 C 68 12	30 21 8 5 10 13 10 27 6	554 224 315 27 247 248 140 401 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005 543 21 468 320 529
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Buxton Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Hopital Pownal, 575—Cumberland Pownal, 575—Aroostook Hotel Dieu Hospital Yan Buren, 5,380—Aroostook Hotel Dieu Hospital York Village, 1,500—1 ork York Hospital Aberdeen Proving Ground,—H Station Hospital Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis Emergency Hos pital U S Naval Hospital*A Baltimore City Hospitals*+ Baltimore City Tuberculosi Hospital Baltimore City Tuberculosi Hospital Baltimore Eye, Ear and Thr Charity Hospital*A Beek Duagnostie Clinic Bon Secours Hospital School/Cliutreh Home and Infirm	Gen Gen Gen Gen Gen IARY: Gen Gen City Gen	Corp Church State Corp Church NPAssn LAND Gigstanoo o Army NPAssn Navy City of Baltim NPAssn Indiv Church NPAssn	18 15 45 1,120 30 10 21 12 80 192 1,300 ore C. 60 60 122 158 120	10 5 5 24 142 5 6 7 7 7 10 10 10 10 10 10 10 10 10 10 10 10 10	2 Busslucts 7 So spit cospi	23 71 Numper of 1,0 % als tals	148 138 704 57 21 333 785 785 simpy 192 2,392 1,576 7,438 2,938 177 3,597 3-0	Memorial Hospital& Easton, 4,528-Talbot Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Umon Hospital of Cecil Count; Fort George G Meade,Anne & Station Hospital& Frederick, 15,802-Frederick Emergency Hospital& Frederick, City Hospital& Frederick, City Hospital& Frostburg, 7,639-Allegany Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washingto Washington County Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Jiamsville, 200-Frederick Riggs Cottage Sanitarium La Plata, 488-Charles Physicians Memorial Hospital Henryton, 58-Charles Physicians Memorial Laurel, 2 823-Prince Georges District Training School Laurel Sanitarium Leonardtown, 668-St Marys St Mary's Hospital Wount Wilson, 223-Baltimore Mt Wilson Branch, Mary land Tuberculosis Sana torium Olney, 100-Montgomery Montgomery County General Hospital Perry Point, 80-Cecil Veterans Admin Facility& Prince Frederick, 500-Calvert Calvert County Hospital	Gen Gen Gen Tundel Gen	CyCo NPAcen Army NPAcen Armit County NPAcen State nebingtor NPAcen State India County achingtor India NPAcen State	166 107 52 113 47 122 39 142 40 500 23 210 40	123 70 23 35 65 28 64 23 70 101 21 374 26 12 C 68 12	30 21 S 5 10 13 10 27 6	554 224 315 27 247 248 140 401 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005 543 21 468 320 529 223 1,423
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—1 ork Burton Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 570—Cumberland Pownal, 570—Cumberland Pownal, 570—Cumberland Pownal, 570—Cumberland Pownal, 570—Cumberland Pownal, 578—Aroostook Hotel Dieu Hospital Yan Buren, 5,380—Aroostook Hotel Dieu Hospital Ork Village, 1,500—York York Hospital Annapolis, 13,009—Anne Arund Annapolis, 13,009—Anne Arund Annapolis, 13,009—Anne Arund Annapolis, 13,009—Anne Arund Annapolis, 13,100—Baltimore Baltimore City Hospital*A Baltimore City Hospitals* Baltimore City Tuberculosh Hospital Baltimore City Tuberculosh Hospital Baltimore Eye, Ear and Thr Charity Hospital*A Beek Diagnostic Clinic Bon Secours Hospital*A Children's Hospital School Cliurch Home and Infirm ary***Ao Franklin Square Hosp ***Ac	Gen Gen Gen Gen Gen Gen IARY: Journal of Gen City Gen Gen Gen Gen Gen	Church State Corp Church State Corp Church NPAesn LAND Gigstand O Arms Navy City of Baltim MPAesn Indiv Church NPAesn Church NPAesn Church NPAesn Church NPAesn Church NPAesn	18 15 45 1,120 30 10 21 12 80 192 1,300 ore C 12 158 120 163 200	10 0 1 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 4 7 Bussinets 7 4 5 Sir	23 71 Numper of 1,0 % als tals	148 138 704 57 21 333 785 8jmpV 192 2,392 1,576 7,408 2,938 177 3,597 3,597 3,597 4,064 4,661	Memorial Hospital& Easton, 4,528-Talbot Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Umon Hospital of Cecil Count; Fort George G Meade,Anne & Station Hospital& Frederick, 15,802-Frederick Emergency Hospital& Frederick, City Hospital& Frederick, City Hospital& Frostburg, 7,639-Allegany Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-W ashingto Washington County Hosp & Hayre de Grace, 4,967-Harford Harford Memorial Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Jamsville, 200-Frederick Riggs Cottage Sanitarium La Plata, 488-Charles Physicians Memorial Hosp Laurel, 2 823-Prince Georges District Training School Laurel Sanitarium Leonardtown, 668-St Marys St Mary's Hospital Wount Wilson, 223-Baltimore Mt Wilson Branch, Mary land Tuberculosis Sana torium Olney, 100-Montgomery Montgomery County Genera' Hospital Perry Point, 80-Cecil Veterans Admin Facility& Prince Frederick, 200-Calvert Calvert County Hospital Reisterstown, 2,000-Baltimore Mount Pleasant	Gen Gen Gen Tundel Gen	CyCo NPAcen Army NPAcen Army County NPAcen State nebingtor NPAcen State Indix County achingtor Indix NPAcen State NPAcen	106 107 52 113 47 122 39 142 40 500 20 23 210 40 1,229	123 70 23 35 65 28 64 23 101 21 374 26 12 C 68 12 157 39 1,270	30 21 S 5 10 13 10 27 6	554 224 315 27 247 228 140 461 1°8	4,029 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005 543 21 468 320 529 223 1,423 424
Auburn, 19,817—Androscoggin Auburn Private Hospital Bangor, 29,822—Penobscot Gay Private Hospital Bar Mills, 400—York Button Hollis Hospital Eagle Lake 1,891—Aroostook Northern Maine General Ho pital Pownal, 570—Cumberland Pownal State School Union, 1,150—Knov Jones Sanitarium Van Buren, 5,380—Aroostook Hotel Dieu Hospital York Yillage, 1,500—York York Hospital York Yillage, 1,500—York York Hospital Annapolis, 13 069—Anne Arund Annapolis, 13 069—Anne Arund Annapolis Emergency Hos pital U S Naval Hospital* Baltimore City Hospital* Baltimore City Tuberculosis Hospital Baltimore City Tuberculosis Hospital Baltimore Fye, Ear and Thr Charity Hospital* Beek Diagnostic Clinic Bon Secours Hospital* Children's Hospital *AChildren's Hospital School Cliurch Home and Infirm ary**	Gen Gen Gen Gen Gen Gen Gen Gen	City Of Baltim Of Baltim APAssan APAss	18 15 45 1,120 30 10 21 12 1,30 10 12 1,30 10 10 10 10 10 10 10 10 10 10 10 10 10	10 0 1 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 4 7 Bussinets 7 50 cept occupied 32 2537	23 71 274 274 274 274 274 274 274 274 274 274	148 138 704 57 21 333 785 8impy 192 2,392 1,576 7,438 2,938 1,576 7,438	Memorial Hospital& Easton, 4,528-Talbot Emergency Hospital& Edgewood, 300-Harford Station Hospital Elkton, 3 518-Cecil Umon Hospital of Cecil Count; Fort George G Meade,Anne & Station Hospital& Frederick, 15,802-Frederick Emergency Hospital Frederick, City Hospital& Froderick, City Hospital& Frostburg, 7,639-Allegany Miners Hospital Glenn Dale, 205-Prince Georges Glenn Dale Sanatorium Hagerstown, 32,491-Washington Washington County Hosp & Havre de Grace, 4,967-Harford Harford Memorial Hospital Henryton, 30-Carroll Maryland Tuberculosis Sana torium Ijamsville, 200-Frederick Riggs Cottage Sanitarium La Plata, 488-Charles Physicians Memorial Hosp Laurel, 2832-Prince Georges District Training School Laurel Sanitarium Leonardtown, 668-St Marys St Mary's Hospital Mount Wilson, 225-Baltimore Mt Wilson Branch, Mary land Tuberculosis Sana torium Olney, 100-Montgomery Montgomery County General Hospital Petry Point, 80-Cecil Veterans Admin Facility& Prince Frederick, 300-Calvert Calvert County Hospital Reisterstown, 2,000-Baltimore	Gen	CyCo NPAesn Army NPAesn State nehingtor NPAesn State Indiv County achingtor Indiv NPAesn State Indiv County APAesn State Indiv NPAesn NPAesn State Indiv NPAesn 166 107 56 52 113 47 123 39 0, D (0 142 40 500 23 210 40 1,229 23	123 70 23 35 65 28 64 23 101 21 374 26 12 C 68 12 157 39 1,270	30 21 S 5 10 13 10 27 6	554 224 315 27 247 228 140 461 1°8	4,020 2,367 75, 1,109 1,382 605 2,339 877 3,627 1,005 543 21 463 320 529 223 1,423 424	

MARYLA	ND—Con	tinu	ed	MASSACHUSETTS—Continued			
	hip		es -1	- £	ot		470
Hospitals and Sanatoriums	Service Ownership or Control	n orde	Average Consus 4	Bassinets	Number Births	Admis-	ont in the ser is the
Rockville, 2,047—Montgomery Chestnut Lodge Sanitarium. No					Z		Hospitals and Sanatoriums Avan O O O O O O O O O O O O O O O O O O O
Maryland Tuberculosis Sana-	M Indiv	50	43	• ••	•••	97	tan+A
torium, Eastern Shore BranchTI	State	78	64	٠.,		108	Jewish Memorial Hospital. Gen NPAssp 70 75
Silver Spring, 7.500—Montgomery	NPAssr	1 177			487		Joseph H. Pratt Diagnostic
Cedarcroft Sanatorium No State Sanatorium, 200—Frederick Maryland Tuberculosis Sana-	M Part	42	27	•••	•••	247	Massachusetts Eve and For
torium TE Sykesyille, 806—Carroll	State	510	502			622	Infirmary+A0
Springfold Ctata Hospitalt 35	nt State	2,950	2,904			648	pital*+A0
Takoma Park, 8,938—Montgomery Walter Reed General Hosp See Washington Sanitarium and	Washingto	n, D.	C.				pital, Baker Memorial A Gen NPAssn 284 254 46 499 6,775 Massachusetts General Hos-
Hospital See	Washingto	n, D.	C.				pital, Phillips House ⁴ Gen NPAssn 102 59 22 192 2,409 Massachusetts Memorial Hos-
Aigburth Manor Ne	v Indiv	23	17			38	pitals*+40
Hospital for Consumptives (Eudowood Sanatorium) TE	NPAssn	196	191			207	Massachusetts Women's Hos- pital ^A
Sheppard and Enoch Pratt Hospital+0 N&	M NPAssn	285	287			364	New England Baptist Hos- pital▲○
Western Port, 3,565—Allegany Reeves Clinic Ger		17	11	5	50	472	New England Deaconess Hos-
Related Institutions							New England Hospital for
Baltimore, 859,100—Baltimore City Baltimore City Jail Hosp Ins	t City	28	10			484	Women and Children**A. Gen NPAssn 185 117 75 1,385 3,667 Palmer Memorial Hospital*. Unit of New England Deaconess Hospital
Happy Hills Convalescent Home for Children Co	•					261	Peter Bent Brigham Hos- pital*+**
Home for Incurables Inc	ur NPAssn	149	149	::	• • •	48	Robert Breck Brigham Hos-
Maryland Penitentiary Hos- pital Ins	t State	50	22			270	Robert Dawson Evans Me-
Jessups, 400—Anne Arundel Maryland House of Correc-							morial+
tion Hospital Ins Owings Mills, 130—Baltimore	t State	47	18	••	•••	730	St. Margaret's Hospital Gen Church 75 47 34 696 1,538 St. Mary's Lying-In Hospital MatCh Church 48 25 28 148 130
Rosewood State Training School Me	De State	1,226	1,182			91	Sanatorium Division of Boston City Hospital+ TB City 616 506 622
Rockville, 2,047—Montgomery Christ Child Farm for Con-							U. S. Marine Hospital**A Gen USPHS 336 164 2,076 Vincent Memorial Hospital Gen NPAssn 21 15 268
valescent Children Co. Sparrows Point, —Baltimore	v NPAssn	35	33	••	•••	117	Bridgewater, 8,902—Plymouth
Sparrows Point Hospital Inc	us NPAssn	24	2	••	•••	62	Bridgewater State Hospital See State Farm Brockton, 62,343—Plymouth
MASSAC	HUSET	TS					Brockton Hospital
		TS	e) +-	ts	Jo.		Goddard Hospital
\$o			rage sus †	sinets	nber of ths	nis- 18 †	Goddard Hospital
\$o		TS Beds	Average Census †	Bassinets	Number of Births	Admis- sions †	Goddard Hospital
Hospitals and Sanatoriums	Posteration or Control	Beds	Average S Census †		Number Births	Admis- sions +	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital	Posteration or Control		Average		Number Births	Admis- sions +	Goddard Hospital
Hospitals and Sanatoriums Hospitals and Sanatoriums Hospital	aiyasan O diyasan O diyasan O diyasan	Beds		17	Number Births		Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145 Acushnet Hospital	displayed and a control of the contr	57 Beds	36	17	S Number Births	1,316	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berksbire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex	distribution of the control of the c	25 29 29 29 29 29 29 29 29 29 29 29 29 29	36 23 15	17 15 6	Number 500 101 Births	926	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berksbire W. B. Plunkett Memorial Hospitall Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middleecx	city City City	50 35 30 50 35 30	36 23 15 17	17 15 6 6	Number 354 Births	926 697	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145 Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), -1 Chicopee Hospital Ger Amesbury, 10,602—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. A. Ger	city City City	25 29 29 29 29 29 29 29 29 29 29 29 29 29	36 23 15 17	17 15 6	Number 500 101 Births	926 697	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital	City ampden Indiv City Corp NPAssn	55 50 35 30 60 80	36 23 15 17 42 61	17 15 6 6 20	206 104 145 	926 697 312 2,541	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,45- Acushnet Hospital Ger Adams, 12,608—Berksbire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Ger	Given and the corp	55 50 35 30 60	36 23 15 17 42	17 15 6 6 20	206 104 145	926 697	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), -1 Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao Ger Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB	Given by County City City City City City City City Corp NPAssn County	55 50 35 50 60 80 60 60	36 23 15 17 42 61	17 15 6 6 20	206 104 145	926 697 312 2,541	Goddard Hospital
Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Addenville (Chicopee Falls P.O.), -1 Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao. Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen	City Indiv City I Corp NPAssn County NPAssn NPAssn	55 50 35 30 60 80 60 106 23	36 23 15 17 42 61 52 70	17 15 6 6 6 20 21 7	206 104 145 171 132	1,516 926 697 312 2,541 75 1,925 970	Goddard Hospital
Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Addenville (Chicopee Falls P.O.), -1 Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao. Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen	City Indiv City I Corp NPAssn County NPAssn NPAssn	55 50 35 50 60 80	36 23 15 17 42 61 52 70 14	17 15 6 6 20	206 104 145 171	926 697 312 2,541 75 1,925 970	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital	City ampden Indiv City Corp NPAssn County NPAssn NPAssn NPAssn The county NPAssn NPAssn NPAssn The county NPAssn NPAssn NPAssn NPAssn	55 50 35 30 60 80 60 106 23	36 23 15 17 42 61 52 70 14 108 1,429	17 15 6 6 6 20 21 7	206 104 145 171 132	926 697 312 2,541 75 1,925 970 26 337	Goddard Hospital
Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital	City ampden Indiv City Corp NPAssn County NPAssn NPAssn NPAssn The county NPAssn NPAssn NPAssn The county NPAssn NPAssn NPAssn NPAssn	55 50 35 30 60 80 60 23 135 1,484 232	36 23 15 17 42 61 52 70 14 108 1,429 208	17 15 6 6 20 21 7	206 104 145 171 132 	926 697 312 2,541 75 1,925 970 26 357	Goddard Hospital
Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —1 Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao. Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen dren Gen dren Chi Bedford, 3,507—Middlesex Veterans Admin. Facility Mer Belmont, 26,867—Middlesex McLean Hospital Ao. N& Beverly, 25,537—Essex Beverly, 25,537—Essex Beverly Hospital Ao. Gen	City ampden Indiv City Corp NPAssn County NPAssn NPAssn NPAssn The county NPAssn NPAssn NPAssn The county NPAssn NPAssn NPAssn NPAssn	55 50 35 30 60 80 60 23 135 1,484	36 23 15 17 42 61 52 70 14 108 1,429	17 15 6 6 20 21 7	206 104 145 171 182	926 697 312 2,541 75 1,925 970 26 357	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen dren Gen Bedford, 3,867—Middlesex Veterans Admin. Facility Mer Belmont, 26,867—Middlesex McLean Hospital Ao Beverly, 25,537—Essex Beverly Hospital Gen Boston, 770,816—Sufolk Adams House (Adams Ner- Ner	City M Corp NPAssn County NPAssn County NPAssn NPAssn NPAssn NPAssn NPAssn NPAssn NPAssn	55 50 35 30 60 80 106 23 135 1,484 232 173	36 23 15 17 42 61 52 70 14 108 1,429 208 133	17 15 6 6 20 24 7 44	224 206 104 145 1711 182 527 :	1,516 926 697 312 2,541 75 1,925 970 26 337 216 45	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen dren Chi Bedford, 3,507—Middlesex Veterans Admin. Facility Mer Belmont, 26,867—Middlesex McLean Hospital Ao Gen Boston, 770,816—Suffolk Adams House (Adams Nervine) Ner Audubon Hospital Gen Audubon Hospital Gen Acush Hospital Gen Audubon Hospital Gen	City ampden Indiv City NPAssn	55 50 35 30 60 80 106 23 135 1,484 232 173	36 23 15 17 42 61 52 70 14 108 1,429 208 133 10 18 185	17 15 6 6 20 44	204 206 104 145 171 132 527 :	1,516 926 697 312 2,541 75 5 1,925 970 26 237 216 45 776 776 776 776	Goddard Hospital
Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berksbire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao. Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen A Gen dren Chi Bedford, 3,807—Middlesex Veterans Admin. Facility Mer Belmont, 26,807—Middlesex McLean Hospital N& Beverly, 25,537—Essex Beverly Hospital*+40 Gen Boston, 770,816—Suffolk Adams House (Adams Nervine) Gen Beth Israel Hospital*+40 Gen Beth Israel Hospital*+40 Gen Beth Israel Hospital*+40 Gen Beth Israel Hospital*+40 Gen	City ampden Indiv City Corp NPAssn County NPAssn	55 50 35 30 60 80 106 23 135 173 173 215 21,392 215 22,392 215 22,392 215	36 23 15 17 42 61 14 108 1,429 208 133 10 18 185 1,379 33	17 15 6 6 20 24 7 44	100 0.00 1.00 1.00 1.00 1.00 1.00 1.00	1,516 926 697 312 2,541 75 1,925 970 26 237 216 45 776 5,165 3,181 4999	Goddard Hospital
Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital	City ampden Indiv City M Corp NPAssn County NPAssn	55 50 35 30 60 80 106 23 135 1,484 232 113 215 215 215 215 215 215 215 215 215 215	36 23 15 17 42 61 14 10S 1,429 20S 133 110 115 115,379 117 117,379 118 118,379 119 119 119 119 119 119	17 15 6 6 20 44 5 22 36 2	244 206 104 145 1711 132 100 (1,023 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,033 44 1,0	1,516 926 697 312 2,541 75 1,925 970 26 337 216 3,161 970 45 776 45 776 3,161 990 3,711	Goddard Hospital
Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berksbire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao. Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen A Gen dren Chi Bedford, 3,607—Middlesex Veterans Admin. Facility Mer Belmont, 26,867—Middlesex McLean Hospital Mer Beverly, 25,537—Essex Beverly Hospital*Ao Gen Boston, 776,16—Suffolk Adams House (Adams Nervine) Gen Buth Israel Hospital*Ao Gen Boston Lying-In Hosp*Ao Mar Boston Lying-In Hosp*Ao Men Boston Psychopathic Hospital*Ao Gen Boston Floating Hosp. Ao. Chil Boston Lying-In Hosp*Ao Men Boston State Hospital*A Men	City ampden Indiv City M Corp NPAssn County NPAssn State	55 50 35 30 60 80 60 23 135 1,484 232 173 113 32 215 50 136 137 137 137 138 139 139 139 139 139 139 139 139	36 23 15 17 42 61 14 108 1,429 208 103 10 18 185 11,379 19 19 197	17 15 6 6 20 24 7 44 5 36 2	206 104 145 1711 132 100 (48 48 48 48 48 48 48 48 48 48 48 48 48	1,316 926 697 312 2,541 75 1,925 970 26 337 216 3,161 990 3,711 4,158	Goddard Hospital
Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berksbire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao. Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen dren Chi Bedford, 3,807—Middlesex Veterans Admin. Facility Mer Belmont, 26,807—Middlesex McLean Hospital Mospital Gen Boston, 770,816—Suffolk Adams House (Adams Nervine) Boston Forting Hospital* Gen Boston Floating Hospital* Men Boston State Hospital* Gen	City Impden Indiv Impden	55 50 35 30 60 80 106 23 135 1,484 232 173 15 22 23 23 24 24 24 24 24 24 24 24 24 24	36 23 15 17 42 61 14 10S 1,429 20S 133 100 18 185 115 19 27 2,321 117 26	17 15 6 6 20 24 7 44 5 36 2	206 104 145 1711 132 100 (5.24 4.35) 100 (5.24 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35)	1,316 926 697 312 2,541 75 1,925 970 26 337 216 3,161 990 3,711 4,158 5,111 1,758	Goddard Hospital
Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,602—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N. & Symmes Arlington Hosp. A. Ger Atleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Ger A Gen dren Chi Bedford, 3,607—Middlesex Neterans Admin. Facility Mer Belmont, 20,607—Middlesex McLean Hospital Ger Boston, 770,516—Suffolk Adams House (Adams Nervine) Mer Boston Floating Hospital Gen Boston Floating Hospital Gen Boston Floating Hospital Gen Boston Floating Hospital Gen Boston Floating Hospital Hos	City M Corp NPAssn County NPAssn County NPAssn NPAssn NPAssn NPAssn NPAssn NPAssn NPAssn State Church	55 50 35 30 60 80 60 106 23 135 1,484 232 173 135 215 2,392 136 110 2,474 110	36 23 15 17 42 61 14 10s 1,429 20s 133 119 19 21,339 119 2,331 119 17 2,331	17 15 6 6 20 21 7 36 22 36 2	206 104 145 1711 132 100 (5.24 4.35) 100 (5.24 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35) 100 (6.25 4.35)	1,516 926 697 312 2,541 75 1,925 970 26 237 216 5,165 5,165 5,161 990 3,711 2,043	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen Sturdy Memorial Hospital Gen Bedford, 3,867—Middlesex Veterans Admin. Facility Mer Belmont, 26,867—Middlesex McLean Hospital Ao Beverly, 25,537—Essex Beverly Hospital Ao Beverly, 25,537—Essex Beverly Hospital Gen Boston, 770,816—Sunfolk Adams House (Adams Nervine) Moston Floating Hosp. Ao Gen Boston Floating Hosp. Ao Boston Floating Hosp	City Impden Indiv Impass Impas	55 50 35 30 60 80 106 23 135 1,484 232 173 15 32 173 15 32 173 173 186 27 27 27 70	36 23 15 17 42 61 14 105 1,429 205 133 10 18 185 1,379 119 177 2,321 1172 26 196 191 14	17 15 6 6 20 21 7 44 5 6 20 60	224 206 104 145 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 13	1,316 926 697 312 2,541 75 1,925 970 26 337 216 45 776 45 3,181 990 1,158 1,158 1,158 1,158 1,711 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,701 5,70	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Alington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao. Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen dren Childesex Veterans Admin. Facility Mer Belmont, 26,867—Middlesex McLean Hospital Ao. Beverly, 25,537—Essex Beverly Hospital Gen Boston, 770,816—Suffolk Adams House (Adams Nervine) Soston, 770,816—Suffolk Boston Lying, 19 Hospital Gen Boston Lying, 19 Hospital Gen Boston Lying, 19 Hospital Gen Boston Floating Hospital Gen Boston State Hospital Men Carney Hospital Gen Channing Home Channing Home Channing Home TB Children's Hospital Gen Evangeline Booth Maternity Hospital and Home Karangeline Booth Maternity Hospital Hospital Gen Evangeline Booth Maternity Hospital and Home Karangeline Booth Maternity Hospital and Home Karangeline Hospital Material Gen Evangeline Booth Maternity Hospital and Home Karangeline Hospital Gen Evangeline Booth Maternity Hospital and Home Karangeline Hospital Gen Evangeline Hospita	City ampden Indiv City Indiv Corp NPAssn County NPAssn	55 50 50 60 80 60 106 23 135 1,484 232 173 125 2,392 2,7 70 130 27 70 1325	36 23 15 17 42 61 14 105 1,429 205 123 10 18 185 185 185 196 197 2,321 172 26 196 191 111 111 106	17 15 6 6 20 24 7 44 45 56 2 20 60 33	244 206 104 145 171 132 100 (1527 1527 1527 1527 1527 1527 1527 1527	1,316 926 697 312 2,541 75 1,925 970 26 337 216 45 776 3,161 45 776 3,163 3,161 45 7,711 6,043 7,158 6,111 6,78 8,08	Goddard Hospital
Hospitals and Sanatoriums Acushnet (New Bedford P.O.), 4,145- Acushnet Hospital Ger Adams, 12,608—Berkshire W. B. Plunkett Memorial Hospital Ger Aldenville (Chicopee Falls P.O.), —I Chicopee Hospital Ger Amesbury, 10,862—Essex Amesbury Hospital Ger Arlington, 40,013—Middlesex Ring Sanatorium and Hosp. N& Symmes Arlington Hosp. Ao Gen Attleboro, 22,071—Bristol Bristol County Tuberculosis Hospital TB Sturdy Memorial Hospital Gen Sturdy Memorial Hospital Gen Bedford, 3,867—Middlesex Veterans Admin. Facility Mer Belmont, 26,867—Middlesex McLean Hospital Ao Beverly, 25,537—Essex Beverly Hospital Ao Beverly, 25,537—Essex Beverly Hospital Gen Boston, 770,816—Sunfolk Adams House (Adams Nervine) Moston Floating Hosp. Ao Gen Boston Floating Hosp. Ao Boston Floating Hosp	City ampden Indiv City Indiv Corp NPAssn County NPAssn	55 50 50 60 80 60 80 106 23 135 1,484 232 173 15 22 239 22 239 2474 210 210 210 211 211 212 213 213 214 214 215 216 217 217 217 217 217 217 217 217	36 23 15 17 42 61 14 108 1,429 208 133 110 1 33 3 110 1 172 2,321 172 26 196 141 111 110 209	17 15 6 6 20 44 5 20 6 6 6 6 6 6 6 6 6 6 6 6 6	206 104 145 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 171 132 17	1,316 926 697 312 2,541 75 1,925 970 26 337 216 45 776 3,181 990 45 3,181 990 2,043 3,181 990 2,043 3,181 990 8,153 3,711 2,043 8,153 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,111 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 2,143 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,141 8,14	Goddard Hospital

MASSACHU	JSET	TS—C	ontin	ued		MASSACHUSETTS—Continued							
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis sions †	Hospitals of Service Ownership or Control Beds Average Census † Bassinets Mumber of Births Admis					
Georgetown, 1,803—Essex	E.S.	58	ä	Ğ.	Ba	N N	Ad slo	North Wilmington, 472—Middlese\					
Baldpate Gloucester, 24,046—Essex	N&M	Corp	47	33		•	1 65	North Reading State Sana torium+▲ TbChil State 297 212 114	ł				
Addison Gilbert Hospital		NPAssn	85		19	322	2,134	Norwood, 15 383—Norfolk Norwood Hospital Gen NP 4ssn 93 80 24 511 2 928	3				
Greenfield, 15,672—Franklın	Gen	NPAssn	53	35	13	134	1,302	Oak Bluffs, 1584—Dukes Martha's Vineyard Hosp A Gen NP 4ssn 29 12 10 77 432	2				
	Gen	NPAsen	87	64	21	327	1 858	Palmer, 9,149—Hampden Monson State Hospital+A Epil State 1,665 1,541 140 Wing Memorial Hospital Gen APAssn 27 16 8 132 1,175					
	Gen	Corp	14	4	4	29	1,016	Penbody, 21,711—Essex _ Josiah B Thomas Hospital Gen City 65 30 15 192 1,099					
Hathorne, 146—Essex Danvers State Hospital+4 Haverhill, 46,752—Essex	Ment	State :	2 375	2,289			811	Pittsfield, 49 684—Berkshire Hillerest, Hospital Gen NPAssn 42 33 10 127 952					
Benson Hospital Hayerbill Municipal Hospitals	Gen	Indiv	26	14	2	17	313	House of Mercy Hosp *A Gen NPAssn 202 114 33 442 3989					
(Hale)*▲ Haydenville, 1,000—Hampshire Hampshire County Sana	Gen	City	170	114	28	496	4,730	St Luke's Hospital*AO Gen Church 1.6 120 33 692 3,559 Plymouth, 13,100—Plymouth Jordan Hospital* Gen NPAssn 65 40 10 240 1,381 Pocasset, 365—Barnstable	1				
torium Holden, 3,924—Worcester	тв	County	50		•	101	000	Barnstable County Sana torium Gen County 35 27 242 1B County 35 34 49					
Holyoke, 53 750—Hampden	Gen	NPAssn	32	25	6	121 432	938	Quincy, 75,810—Norfolk Quincy Oity Hospital** Gen City 274 237 50 1,268 8,308					
	Gen Gen	NPAssn Church	119 168	82 13ə	24 32	732	2 434 3 662	Rutland, 2 181—Worcester Jewish Tuberculosis Sana	-				
	Gen	NPAssn	6ა	47	15	321	1,947	torium TB NPAssn 30 25 33 Rutland State Sanatorium+ TB State 365 278 268					
Benjamin Stickney Cable Me	Gen	NPAssn	93	20	7	140	510	Rutland Heights, 800Worcester Veterans Admin Facility TB Vet 272 258 389					
Lawrence, 84 323—Essex Bessie Burke Memorial Hosp		City	12ə	10ə	12	149	2 201	Gen Vet 196 140 1,268 Salem, 41,213—Essex					
Clover Hill Hospital Lawrence General Hosp **	Gen Gen	Corp NPAssn	60 172	44 113	$\frac{20}{42}$	538 442	1,791 3,107	North Shore Babies' Hosp & Chil NPAssn 50 31 494 Salem Hospital*					
Leominster, 2, 226—Worcester Leominster Hospital	Gen	NP 4 sen	61	46	12	326	1 890	Sharon, 3,737—Norfolk Sharon Sanatorium Chil NPAssn 20 Reorganized Someryile, 102,177—Middleses	i				
	Gen Gen	NP Assn Church	158 175	105 146	30 %	514 575	3,187 4 088	Somerville Hospitalia Gen NPAssn 115 95 30 764 3,462 South Braintree, —Norfolk	2				
St Johns Hospital** St Joseph's Hospital** Shaw Hospital	Gen Gen	Church	113	97 8	20 12	469 77	3 057 200	Norfolk County Hospital** TB County 168 165 . 133 Southbridge, 16 8%—Worester	5				
Ludlow, 8,181—Hampden Ludlow Hospital	Gen	NPAssn	30		14	314	762	Harrington Memorial Hosp & Gen NP Assn 40 25 12 213 970 South Dartmouth, 1 810—Bristol)				
Lynn 98,123—Esse\ Lynn Hospital*A	Gen	NP Asen	184	164		1,216		Sole e Mar Orthopedic Hospital for Children Orth NPAssn 40 30 . 23	,				
Union Hospital Malden, 58 010—Middlesex	Gen	NPAssn	56	36	22		1 624	South Hanson, 831—Plymouth Plymouth County Hospital TB County 140 90 61					
Malden Hospital+Ao Marblehead 10,856—Esse	Gen	NP 4 ssn	207	146	36	883	4 716	Springfield, 149 554—Hampden Health Department Hosp & Thiso City 100 61 387					
Mary A Alley Emergency Hospital	Gen	City	15	11	8	68	683	Mercy Hospital*AO Gen Church 315 236 50 1,365 7,347 Shriners Hospital for Crip					
Marlboro, 15 154—Middlese Marlborough Hospital▲	Gen	NPAssn	63	46	23	353	1 ა6 4	pled Children+A Orth NPAssn 60 60 °01 Springfield Hospital*AO Gen NPAssn 281 229 4 2 6 586					
Medfield, 4 384—Norfolk Medfield State Hospital+Ao Nodford 62 622 Nuddless	Ment	State	1 8ა9	1,867			220	Wesson Maternity Hosp AO Mat NPAssa 62 52 66 1,5% 175 Wesson Memorial Hosp A Gen NP 1ssa 116 74 2 696	3				
Medford 63,083—Middlese\ Lawrence Memorial Hosp ** Melrose, 25,333—Middlese\	Gen	NP4ssn	75	80	34	869	2 266	State Farm, 290—Plymouth Bridgewater State Hospital Vent State 962 890 79 Stockbridge 1,815—Berkshire)				
Melrose Hospital	Gen 1	NPAssn	100	95	25	507	2,887	Austen Riggs Foundation Nerv NPAssn 50 21 . 256 Taunton, 37 39.—Bristol	;				
Hospital♣♦ Methuen 21 880—Essex	Gen	Church	13ə	105	17	368	2,749	Morton Hospital					
Mary E McGowan Memorial Hospital	Gen	Corp	28	17	8	245	798	Tenksbury, 6 261—Middlese\ Tenksbury State Hospital					
Middleboro, 9 032—Plymouth Lakeville State Sanatorium St. Lule's Hospital		State	302	262	15	1.10	262	and Infirmary+A Gen State 3,304 2 371 40 88 2,316 TB State 156 102 117					
Middleton, 2,348—Essex Essex Sanatorium	Gen TB	NP4sen County	31 ვა0	17 377	15	148	60S 313	Vines ard Haven, 1,500—Dukes U S Marine Hospital Gen USPHS 24 15 117 Waltham, 40 020—Middlesex	ī				
1	Gen	Corp	61	44	15	425	2,099	Metropolitan State Hosp & Ment State 1,996 1,907 . 86 Middlesex County Sana	;				
onya							-	torium+A IB County 380 347 317 Waltham Contagious Hosp Unit of Waltham Hospital					
lescent Home Montague City, 635—Franklin Farren Memorial Hospital	Gen	NPAssn	25	13	6	83	559	Waltham Hospital** Gen NPAssn 165 96 53 610 2,88, Ware, 7,557—Hampshire					
Nantucket, 3,401—Nantucket Nantucket Cottage Hospital	Gen	Church NP Assn	74 23	56 14	12 5	241 34	1 800 558	Mary Lane Hospital					
Natick, 13 851—Middlesex Leonard Morse Hospital	Gen	City	61		14		1,30s	Webster, 13 1-6-Worcester					
Needham 12 445—Norfolk Glover Memorial Hospital	Gen	City	22		10	79	670	Wellesley, 15 127—Norfolk					
New Bedford, 110 341—Bristol St Luke's Hospital*▲◊	Gen	NP \sen		213	4 ə	1,036	7,150	Wiswall Sanatorium \&M Indiv 20 24 20 Westboro, 6 463—Worcester					
Sassaquin Sanatorium Union Hospital	TB Gen	NPAssn Corp	194 32	114 29			100 890	Westboro State Hospital+40 Ment State 1,718 1 671 49. Westfield, 18 793—Hampden					
Anna Jaques Hospital* Worcester Memorial Hosp *	Gen Gen	NP Assn NP Assn	52 24	40 12	10 5	166 83	1,114	Noble Hospital Gen NPAssn 85 54 15 297 2,751 Westfield State Sana					
Newton 69 873—Middlesex New England Peabody Hom		717 711	úŧ	12	J	ಣ	442	torium+A TB State 189 174 172 Cancer State 50 41 666 Westwood, 3,376—Norfolk					
for Crippled Children▲ Newton Hospital*▲≎	ThOr	NPAssn NPAssn		77 166	52	832	28 5 372	Westwood I odge N&M Corp 21 14 37					
Norfolk, 2 294—Norfolk State Prison Colony Hosp A North Adams, 22 213—Berkshire		State	73	35			561	• Gen NP 1een 71 62 24 755 3,113	;				
Aorth agams Hospitai•	tien	NPAssn	91	57	19	325	2 066	Winchendon, 6 575-Worcester					
Northampton, 24 749—Hampshi Cooley Dickinson Hospital A Northampton State Hosp +4	Gen	NP 1sen State	135 2 183	59 2 11a	22	433	2,815 595	Miller's River Hospital Gen Corp 25 15 8 84 694					
Veterans Admin Facility North Grafton, 1,150—Worceste	Ment	Vet	769	757			118	Gen NPAssn 69 54 20 202 1 607					
Grafton State Hospital+A	Ment	State	1,750				204	Hosp Gen NPAssn 44 41 20 426 1489					
			ĸ	EV IO	EVM	nais a	na abb	revistante le on nome 1071					

MASSACHUSETTS-Continued

MASSACH	OSE.	1.1.2	Jonti	nued	i		
		0 0			60	oţ	
	o g	Ownership or Control		S t	Bassinets	į.,	سد ٿ
Hospitals and Sanatoriums	Type of Service	ည်	ds ds	Average Census †	SSi	Ę	ns su
	SS	62	Beds	A S	Ba	Number of Births	Adtais- sions t
Woburn, 19,751—Middlesex Charles Choate Memorial							
Hospital 40	. Gen	NPAssr	42	40) 19	299	1,501
Hospital* Worcester, 193,694—Worcester Belmont Hospital*	mp	_			-	2.0	
	Iso	City City	125 125	90 29		• • •	156 617
Fairlawn Hospital	. Сеп	NPAssn	50	41	18	259	1,558
Memorial Hospital*+**	. Gen	Corp NPAssn	25 185	11 160		49 746	411 6,355
Memorial Hospital*+40 St. Vincent Hospital*40 Worcester City Hospital*+40	Gen	Church	274	200	25	579	5,307
Worcester County Sana-	о сец	City	480	373	70	1,498	10,015
torium▲	. TB	County	130	115		• • •	103
Worcester Hahnemann Hos- pital*▲		NPAssn	111	89	29	653	2,830
Worcester State Hospital+46	Ment	State	2,550	2,466		•••	928
Wrentham, 4,674—Norfolk Pondville Hospital at Nor-							
folk+4	. Cance	r State	147	112			1,384
Related Institutions							
Andover, 11,122—Essex							
Isham Infirmary	Inst	NPAssn	. 50	21			1,450
Belchertown, 3,503—Hampshire Belchertown State School	McDe	State	1,318	1,292			114
Boston, 770,816—Suffolk	ALL DC	State	1,010	كالاشوا	••	•••	114
Bay State Hospital	Gen	Part	17	9	6	37	527
Boston Home for Incurables Deer Island Hospital, Suffoli		NPASSN	57	55	••	• • •	19
County House of Correc-		•					
tion	Inst	СуСо	20	20	••	•••	242
Florence Crittenton Home and Hospital	Mat	NPAssn	21	9	47	96	115
New England Home for Lit-							
tle Wanderers Prendergast Preventorium		NPAssn NPAssn	44 85	17 52	6	• • • •	510 243
Riverbank Hospital	Gen	Indiv	22	5	Ġ	2	150
Talitha Cumi Home	Mat	NPAssn	34	25	17	61	83
Dr. Taylor's Private Hosp Washingtonian Hospital		Indly NPAssn	18 35	5 13		•••	143 653
Cambridge, 110,879—Middlesex					•	•••	
Holy Ghost Hospital for Incurables		Church	215	207			160
curables Egypt, 600—Plymouth	Incur	Charen	210	201	••	•••	100
Children's Sunlight Hospital		NPAssn	50	44	••	• • •	86
Framingham, 23,214—Middlesex Woodside Cottages		Corp	22	18			51
Greenfield, 15,672—Franklin					••		
Greenfield Isolation Hospital	TbIso	City	20	3	••	•••	81
Haverhill, 46,752—Essex Haverhill City Infirmary	Inst	City	72	72			105
Haverhill Municipal Hospitals	:_	·					0.4
(Contagious) Holbrook, 3,330—Norfolk	150	City	40	3	••	•••	81
Elmhurst Hospital and Sani-				_			~
tarium Lowell, 101,389-Middlesex	Conv	Indiv	15	5	••	•••	67
Lowell Isolation Hospital	TB	City	60	43			52
	Iso	City	30	3	••	•••	113
Lynn, 98,123—Essex Lynn Health Department							
Hospital	Iso	City	50	11	••	•••	221
Marblehead, 10,856—Essex Children's Island Sanitarium		NPAssn	94	94			101
Pittsfield, 49,684—Berkshire	Conv	212 212-21			••		
Pittsfield Anti-Tuberculosis	ti, is	NPAssn	14	9			13
Hospital	110	MEMSSH	11	v	••	•••	
Wellington Hospital Home	Conv	Corp	30	20	••	• • •	56
Salem, 41,213—Essex Health Department Hospital							
for Communicable Diseases	Iso	City	60	8	••	•••	137
Somerville, 102,177—Middlesex							
Somerville Contagious Discusse Hospital	Iso	City	60	8	••	•••	113
a constant Hampien	Conv	Indiv	25	16			51
•	Inst	City	126	88			260
	Gen	Part	15	11	14	103	163
•				2			28
	Chil	NPAssn	10	۵	••	• • •	~
	TaDa	State	1,540	1,926			92
School	MCDE	State	.,050		••		
Convalescent Home of the	Orth	NPAssn	70	61			322
Children's Hospital Simpson Infirmary of Welles-	Ottn				-		. 1
2.1.	Inst	NPAssn	20	11	••	•••	664
W		04-4-	0=	,			963
Thetanon 2 550 Plymouth	Inst	State	35		••	•••	- 1
Whitman, 7,759—Plymouth Whitman Hospital	Gen	Indiv	15	7	6	16	35
1 001—Berkshire ary	Inst	NPAssn	21	G	••		423
3			,075 1	,973			105
n	*11 C \$1 C		-		vmbo	is and	

7.6	3	マセン	1	~	۸.	KT.

	M	ICI	lIGAI	N					
	Hospitals and Sanatoriums	Type of Service	Ownership or Control		Beds Avernee	Census †	Bassinets	Births	Admis- sions t
	Adrian, 14,230—Lenawee Emma L. Bixby Hospital (Lenawee County Tuberculosis		City	1	62		17	505	1,550
}	Albion, 8.345—Calhoun		Coun	ty :	30	No	data	sup	plied
1	James W. Sheldon Memorial Hospital	ien	City	• 4	10	23	8	143	721
-	Hospital	en	NPAs	sn 3	34	22	6	178	788
	Carney-Wilcox-Miller Hosp., 6 R. B. Smith Memorial Hosp. 6 Almont, 924—Lapeer	len len	NPAs NPAs	sn S	33 19	16 16	6	97 135	561 771
	Bishop Hospital 6 Alpena, 12,808—Alpena	en	Indiv	3	10	6	3	77	281
	Alpena General Hospital G Ann Arbor, 29,815—Washtenaw Mercywood Neuropsychiatric		City				15 :	223	1,220
1	Hospital N St. Joseph's Mercy Hosp.+40 G State Psychopathic Hospital. U	en en	Chure	n 4 h 21	0 1	27 36	i6 i	00	215 4,438
1	University Hospital*+40G Bad Axe, 2,624—Huron	en	State	1,20	g 8	18 1 13	35 8	74 1	7,551
1	Hubbard Memorial Hospital G Battle Creek, 43,453—Calhoun	en	NPAss	sn 3	0	22	6 1	00	686
	American Legion Hospital+. T. Battle Creek Sanitarium G. Calhoun County Public Hos-	en	NPAss NPAss				: :	:	162 2,883
1	pital T Community Hospital Ge	B en	Count NPAss			17 . 13 2	į į	50 3	74 3,789
	Hospital*A		Church	n 14:	: :	0 1	7 4	99 ,	4,136
1	Bay City, 47,956—Bay Bay City General Hospital Ge Bay City Samaritan Hosp Ge	n	City NPAss	73 n 40		3 1		6 1 34 1	1,924 1,171
{	Mercy Hospital*A0 Ge Benton Harbor, 16,668—Berrien	en	Church					io 3	3,826
}	Mercy Hospitals Co	en	NPAss.						2,990
1	Berrien Center, 241—Berrien Berrien County Hospital Go Big Rapids, 4,987—Mecosta	'n	County						801 em
}	Brighton, 1,353—Livingston	n	City	35				s S	503 307
	Mellus Hospital Ge Cadillac, 9,855—Wexford Mercy Hospital Ge		NPAssi Church						,528
}	Calumet, 1,460—Houghton Calumet and Heela Hospital Inc		NPAssi		9,				292
	Caro, 3,070—Tuscola Caro Community Hospital Ger		City	16	9				421
	Caro State Hospital for		State	1,468	1,328				226
	Epileptics	ı. D	Indiv	12	7		129)	538
	Charlevoix, 2,209—Charlevoix Charlevoix Hospital Ger		NPAssu	25	16	7	110		556
	Charlotte, 5,544—Enton Hayes-Green County Memorial		~	40	••	c	210		700
	Hospital Ger Clare, 1,844—Clare		County	23	13 13	6 5	47		111
}	Clure County General Hosp, Gen Coldwater, 7,343—Branch		Indiv County	18 56	26	12		1,2	
	Community Health Center Gen Crystal Falls, 2,641—Iron Crystal Falls Municipal Hos-		County	00					
		T. 7.	City	17	7	. 5 - 43.1	58 . Wai		340 a1
	Gr	t of	Christi Rapids	an Ps	yenop	atm	e no	.1,,,,	,
	Dearborn, 63,584—Wayne Dearborn General Hospital Gen		Indiv	16	8	12	240		16
	Gen N&: Veterans Admin. Facility Gen	M (NPAssu Church	25 362	348 336		Estab	. 191 6. 2,8	26
3	Veterans Admin, Facility Gen Detroit, 1,623,452—Wayne Alexander Blain Hospital+4 Gen Bethesda_Hospital TB	1	Vet NPAssn	360 60	44	 5	67	1,56	57
	Charles Godwin Jennings		NPAssn NPAssn	83 78	74 46	12	279	2,17	71
	Hospital+A Gen Chenik Hospital TB Children's Hospital+A Chil		VPAssn VPAssn	52 239	42 187	::	···	6,53	15 15
	City of Detroit Receiving		lity	G45	606	4	11 1	5,50	G
	City of Detroit Receiving Hospital (Redford Branch) Gen		ity PASSO	50 45	29 39	i3		1,36 2,27	4
	Cottage Hospital Gen Delray General Hospital Gen Detroit Tuberculosis Sana-	N	PAssn	75	71	22	701	3,26 500	
	toriumATB		PAssn PAssn	85 85	132 66	io 1	•	3,61	1
	Edyth K. Thomas Memorial Hospital	N	PAssn	136		17		1,749 5,729	
	Dital*Ao	X	hurch PAssn	150	143 + 66 . 100 10			91 (67	
	Florer	N	PAssn PAssn PAssn	167 29 501	23 445 10		,511 ,855 17	(7.7	
	Grace Hospital, Northwestern		PAsen	182		0 F	stab. 715 1	1912	
	Branch			600	442 8	, 1,	,es= A-		

MICHIGA		nued					MICHIGAN—Continued	
Hospitals and Sanatoriums ALL	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †	Hope of Service Ownership or Control Beds Average Census † Bussinets Admis- slons †	
Henry Ford Hospital*+♣♦ Gen	NPAssn NPAssn		431 51	36	983	15,20S 60	Hillsdale, 6,331—Hillsdale Hillsdale Community Health	
Herman Kiefer Hospital+40. TB	City City	810 64	798 56	• •	1,817	1,173 2,024	Center▲	٠
Hoobler Convalescent Hos-	City	486	157	••		2,836	Holland City Hospital Gen City 48 30 15 304 1,406 Houghton, 3,693—Houghton	
pial and Rest Home Con Kretzschmar Diagnostic Clinic and Hospital Gen	v NPAssn NPAssn		9	4	36	280 370	Copper Country Sanatorium TB County 66 62 81 Howell, 3,748—Livingston McPherson Memorial Hosp Gen City 24 14 8 191 556	
Lincoln Hospital Gen Marr General Hospital Gen		90	67	20 12	521 350	2,143 921	McPherson Memorial Hosp Gen City 24 14 8 191 556 Michigan State Sanator- ium+4 TB State 476 375 318	
Martin Place Hospital Gen McGregor Health Foundation Cor	NPAssn	10	6 22	3	17	216 346	Ionia, 6,392—Ionia Ionia State Hospital Ment State 1,025 985 136	
Mercy General Hospital Gen Michigan Mutual Hospital. Ind	Indiv is NPAssn		30 18	6	43 	228 696	Iron Mountain, 11,080—Dickinson Iron Mountain General Hos-	
Miriam Memorial Hospital Uni Mt. Carmel Mercy Hosp.** Gen	Of Grace Church NPAssn	325	311 35	60	2,522	10,875 1,295	pital	
Parkside Hospital** Gen Providence Hospital*** Gen St. Aubin General Hospital. Gen	Church Indiv	324 48	319 10	100	2,822 : 20	11,602 376	Grand View Hospital*	
St. Joseph's Mercy Hosp.** Gen St. Mary's Hospital** Gen	Church Church	185 315	15S 260	55 74	1,650 1,441	7,150 9,105	Twin City Hospital Gen Indiv 21 No date supplied Ishpeming, 9,491—Marquette	
Saratoga General Hospital Gen Shurly Hospital+4 Gen	NPAssn Indiv	85	79 65	28	598	3,907 1,788	Ishpeming Hospital Gen NPAssn 53 46 12 215 1,172 Jackson, 49,656—Jackson	
Station Hospital Ger Trinity Hospital Gen U. S. Marine Hospital Ger	Army NPAssn		44 95	22	200	513 2,403	W. A. Foote Memorial Hospital*40	
Waren Diagnostic Hospital Gen Wayne Diagnostic Hospital Gen West Fort Hospital Gen	USPHS Indiv NPAssn	18	169 14 45	 3	3s	2,381 410 560	Jackson County Sanatorium TB County 68 66 68 Mercy Hospital*40 Gen Church 125 69 25 661 3,338 Kalamazoo, 54,007—Kalamazoo	
West Fort Hospital Gen William Booth Memorial	Indiv	30	10	::		120	Borgess Hospital♣○ Gen Church 214 129 27 710 4,686 Bronson Methodist Hosp.♣○ Gen Church 140 91 30 827 4,142	
Hospital Ma Woman's Hospital+A⊙ Gen	Church NPAssn	$\frac{35}{242}$	18 193		568 3,043	719 8,213	Fairmount Hospital TB County 72 50 61 Iso County 21 4 96	
Dowagiac, 5,007—Cass Lee Memorial Hospital Gen	Church	22	13	5	121	603	Kalamazoo State Hosp.+o Ment State 2,939 2,944 569 Lakeview, 824—Montealm Kelsey Hospital	
Durand, 3,127—Shiawassee Durand Hospital	NPAssn		9	5	72	342	Kelsey Hospital	
East Grand Rapids (Grand Rapids) Burleson Hospital Pro		-Kent 20	14		•••	389	pital*40	
Eaton Rapids, 3,060—Eaton Harriet Chapman Memorial	Dont	12	5	3	3	140	St. Lawrence Hospital** Gen Church 169 122 30 1,129 5,745 Lapeer, 5,365—Lapeer	
Hospital		20	8	5	48	314	Lapeer City Hospital Gen Part 18 7 4 33 395 Lapeer State Home and Train-	
Eloise, 1,700—Wayne Eloise Hosp, and Infirmary+A Men					***		ing School	
	Chr County					9,757	Calumet Public Hospital Gen NPAssn : 30 15 10 177 791 Ludington, 8,701—Mason Faulina Stearns Hospital Gen NPAssn 46 23 6 123 954	
pital*+4 Acu	te General id Infirmary		of Eloi	se E	Iospita	al	Manistee, 8,694-Manistee Mercy Hospital and Sani-	
Escanaba, 14,830—Delta St. Francis Hospital Ger	Church	85	77	20	521	2,141	trium	
Flint, 151,543—Genesee Hurley Hospital*+Ao Ger	City	332	295		1,258		Shaw General HospitalGen Indiv 20 13 10 141 402 Marquette, 15,928—Marquette Morgan Heights Sanator-	
St. Joseph Hospital Ger Women's Hospital Ger				60 25	1,440 692	7,346 1,259	ium+4	
Fort Custer,—Kalamazoo Veterans Admin. Facility* Mer	t Vet	1,538	1,178	••	•••	1,304	St. Mary's Hospital Gen Church 60 52 9 224 1,151 Marshall, 5,253—Calhoun	
Fremont, 2,520—Newaygo Gerber Memorial Hospital Ger Guylord, 2,055—Otsego	City	23	12	5	116	3,701	Oaklawn Hospital Gen NPAssn 18 13 7 156 529 Mason, 2,867—Ingham	
Northern Michigan Tubercu- losis Sanatorium	State	130	127			119	Corsaut Hospital	
Gladwin, 1,600—Gladwin Gladwin Hospital Ger		10	5	4	62	385	Milan, 2,340—Washtenaw Federal Correctional Institu-	
Goodrich, 470—Genesee Goodrich General Hospital. Ger		28	22	7	98	1,005	tion	
Grand Haven, 8,799—Ottawa Grand Haven Municipal Hos-				_	***		Mercy Hospital	
pital Ger Grand Rapids, 164,292—Kent	City	. 47	18	8	139	714	Blanchard Hospital Gen NPAssn 15 5 6 50 356 Mt. Clemens, 14,389—Macomb	
Blodgett Memorial Hos- pital*+* Ger Butterworth Hospital*+*. Ger	NPAssn NPAssn		114		730 1,278	4,216 6.504	St. Joseph Sanitarium and Hospital* Gen Church 116 St 34 568 3.278	
Christian Psychopathic Hospital			307	•••	1,270	360	Mt. Pleasant, 8,413—Isabella McArthur-Strange Hospital Gen Part 25 1 6 12 100 Mt. Pleasant Community	
City General Hospital Ger Ferguson-Droste-Ferguson		22	19	•••	•••	822	Hospital	
Sanitarium Pro St. Mary's Hospital*+40 Ger	et Corp Church	33 225	24 189	56	1,186	1,123 6,713	Munising Hospital Gen NPAssn 22 11 4 1:0 500 Muskegon, 47,697—Muskegon	
Sunshine Sanatorium TE Grayling, 2,124—Crawford		126	129		•••	131 982	Hackley Hospital A Gen NPAssn 103 78 17 597 3,149 Mercy Hospital A Gen Church 104 84 30 1,130 4,603	
Mercy Hospital			22 13	5 6	85 124	588 588	Muskegon County Sana- torium ⁴	
Hamtramek, 49,839—Wayne St. Francis Hospital* Ger			75			4,549	torium ^A	
Hancock, 5,554—Houghton St. Joseph's Hospital⁴∘ Ge Hart, 1,922—Oceana			54	16		1,303	1 Pawating Hospital Gen NPAssn 29 % 9 % 1178	
Hart, 1,922—Oceana Oceana Hospital Ge Hartford, 1,694—Van Buren	NPAssr	n 20	9	6	114	500	Northylle, 3,632—Wayne East Lawn SanatoriumTB Corp 05 79 78 Sessions Private HospitalGen Part 23 12 6 375 4.389	
Van Buren County Hospital Ge. Hastings, 5.175—Barry			25	3	12	851	Win. H. Maybury Sanatorium (Detroit Municipal Tubercu-	
Pennock Hospital Ge Hazel Park, —Oakland	NPAsst		22	8	200	1,206	losis Sanatorium)+4 TB City 843 814 719 Norway, 3,728—Dickinson	
Helene Meinke Hospital Ge Highland Park, 50,810—Wayne	n Indiv	12	7	8	100	400	Penn Iron Mining Company Hospital	
Highland Park General Hos- pital*** Ge	1 City	165	161	35	1,223	5,860	Omer Hospital	

MICHIGAN-Continued

MICHI	JAN-		nued				i
		ol ol		a	o,	of	
D-1-4 1. • =	e of ice	ers! ont.		age us ∤	inet	ber 18	· *
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis sions
Ontonagon, 2,290—Ontonagon	ΗQ	9 6	Ħ	OA	щ	MM	A is
Ontonagon Hospital	Gen	Indiv	17	11	3	62	473
Oshtemo, 235—Kalamazoo Pine Crest Sanatorium		Corp	120	102			79
Owosso, 14,424—Shiawassee Memorial Hospital							
Paw Paw, 1,910—Van Buren		NPAssn	80	71	15	526	2,551
Lake View Municipal Hosp. Petoskey, 6,019—Emmet	Gen	City	20	10	4	56	561
Little Traverse Hospital		NPAssn City	63 50	58 25	5	157	2,271
Lockwood General Hospital. Plainwell, 2,424—Allegan		City	50	35	10 c	210	1,268
Wm. Crispe Hospital Plymouth, 5,360—Wayne		City	24	11	6	127	509
Plymouth Hospital Pontiac, 66,626—Oakland	Gen	Part	10	6	3	50	313
Oakland County Contagious	Ton	Com					A**
HospitalOakland County Tuberculosi	180 S	County	85	28	••	•••	658
Sanatorium+A	TB Gen	County City	243 165	215 107	.: 45	850	321 5,151
Pontiac State Hospital+	Ment	State	2,116	2,057			507
St. Joseph Mercy Hosp.+Ao Port Huron, 32,759—St. Clair	GEII	Church	162	143	38	1,385	6,324
Port Huron Hospital Powers, 258—Menominee	Gen	NPAssn	120	82	24	441	3,258
Pincerest Sanatorium	тв	Counties	140	129	••	• - •	152
Reed City, 1,845—Osceola Reed City Hospital	Gen	City	30	17	6	95	856
Reed City Hospital River Rouge, 17,008—Wayne Sidney A. Sumby Memorial							
Hospital	Gen	NPAssn	30	2 5	5	72	381
Rochester, 3,759—Oakland Haven Sanitarium	N&M	Corp	50	37			281
Romeo, 2,627—Macomb				10	2	26	125
Romeo Hospital Webenkel Sanatorium	TB	NPAssn Indiv	8 40	37			92
Royal Oak, 25,087—Oakland Royal Oak Hospital		Indiv	19	17	4	54	743
Saginaw, 82,794—Saginaw							1
County Convalescent Home Saginaw County Hospital.		County County	$\frac{26}{135}$	25 129		32	337 98
_	Iso	County	40	10 117	23	856	256 4,170
Saginaw General Hosp.** St. Luke's Hospital*	Gen	NPAssn Church	129 54	43	15	492	1,836
St. Mary's Hospital**	Gen	Church	164	148	36	943	5,271
St. Clair, 3,471—St. Clair St. Clair Community Hosp	Gen	City	17	7	8	123	434
St. Johns, 4,422—Clinton Clinton Memorial Hospital		NPAssn	50	49	13	271	1,843
St. Joseph, 8,963—Berrien					12	175	8,222
St. Joseph Michigan Hosp Sault Ste. Marie, 15,847—Chippe	ewa ewa	NPAssn	38	23	14	110	کتمارات
Chippewa County war me-		County	96	74	20	416	2,556
morial Hospital Station Hospital	Gen	Army	96 45	38		410	545
Selfridge Field, —Macomb Station Hospital	_	Army	83	45	5	31	1,112
Shelby, 1,367—Oceana				5	4	60	320
Shelby Hospital South Haven, 4.745—Van Buren		City	10				1
City Hospital	Gen	City Indiv	30 12	17 1	6 6	138 8	713 58
Penoyar Memorial Hospital Stambaugh, 2,081—Iron	Gen	Indiv	,,,	4	-	J	- 1
" \ ' Company of	f Gen	NPAssn	27	14	6	150	815
St	_	City	40	24	10	313	1,111
The Tenswee	Gen		-		12	175	761
Tecumsen Hospital	Gen	City	37	23)
Three Rivers Hospital	Gen raverse	City	30	19	6	100	927
		NPASta	te on	9			379
Grand Traverse County	_				2	38	307
Hospital		County	20	14			- 1
nitolao	Gen	State	105	\$ 6	17	336	2,247
Traverse City State Hospital+Ao		State	2,500	2,440	••		445
al	Gen	NPAssn	20	8	5	51	246
		NPAssn	12	8	5	80	272
In any series of the series of		NPAssn	12			Estab.	
Parker-Vincent Hospital Wayne Clinic		NPAssn NPAssn	11 32	18	5 9	80 154	391 966
Wayne General Hospital	ucn		16	11	4	70	626
Tollree Memorial Hospital	Gen	City			42		5,014
Whattonite deneral goots		City	166	119		1,003	1
•		City f Beyer	36 Memor	ial H	12 ospi	tal	1,128
A	TB	NPASSII	135 3,340	62 3,216			1,019
•	Ment	State	_,010	,,		-	{
Hospital	Gen ini	NPAssn	14	10	4	164	417
Hospital			Ke	y to s	ymb	ols and	d abbre

MICHIGAN-Continued

MICH	HIGA:	N-Con	tinue	eđ			
Related Institutions	Type of Service	Ownership or Control	Bođa	Average Census †	Bassinets	Number of Births	Admis.
l Coldwater 7.343—Branch	Inst	NPAss:	n 4	5 2	,	• • • • • • • • • • • • • • • • • • • •	. 180
Coldwater State Home an Training School Crystal Falls, 2,641—fron	d , MeD	e State	797	287	·		323
Iron County Infirmary Detroit, 1,623,452—Wayne	Inst	County	7 14	15	2		161
Burns Home Sanitarium	TB	Indiv	150				249
DeNike Sanitarium Doctor's Hospital	Conv	r Indir	98 33	: 30		•••	333 145
East Grand Rapids (Grand R O'Keefe Sanitarium Farmington, 1,510—Oakland Children's Hospital Conval	N&1	.0.), 4,899- I Corp	- мед і 28	18	·	•••	59
cent Home	ימסC	v NPAssi	n 200	103	·	<i>,</i>	357
Ardmore Hospital Flint, 151,543—Genesee	Gen	Indiv	14	9	8	225	546
Genesee County Hospita	1 Gen	County	. 82	76	15	111	676
and Infirmary Grand Rapids, 164,292—Kent Kent County Receiving Hos	p. Ment	•					413
Mary Free Bed Guild Com- lescent Home	va-	NPAssn					360
Municipal Isolation Hosp. Salvation Army Evangeline	e	City	30			•••	121
Booth Home and Hospit Ionia, 6,392—Ionia	al Mat	Church	40	27		111	129 580
Michigan Reformatory Jackson, 49,656—Jackson Florence Crittenton Home	inst	State	22	12	••	•••	0.00
and Hospital Jackson County Isolation	Mat	NPAssn	25	17	12	38	51
Hospital		County	35 200	8 112	••	•••	224 2,450
Hospital Lansing, 78,753—Ingham Boys' Vocational School ar	mst	State	200	212	••	•••	
Lansing City Hospital Marquette, 15,928—Marquette	Inst Iso	State CyCo	50 48	9 7	::	•••	552 306
Marquette Branch Prison Hospital Mt. Clemens, 14,389—Macomb	Inst	State	24	5	••	•••	123
Sigma Gamma Hosp. Schoo Mt. Pleasant, 8,413—Isabella Mt. Pleasant State Home an		NPAssn	50	43	••	,	123
Mt. Pleasant State Home an Training School Northville, 3,032—Wayne Wayne County Training	id MeDe	State	345	317	••	•••	32
School	MeDe	County	835	641	••	•••	149
Billet	. TB	NPAssn	120	101	••	•••	255 941
P True True True True True True	. Inst	County	225	93	••		
Port Huron Emergency Ho	. Iso	City	22	4	6	1	105
and the second of the first of	. Gen	Indiv	8	3	3	51	169 210
V Company West Company of the Compan	. Сеп	Clty	10	5	3	47	210
M	INNE	ESOTA					
	₩	nership Control		9 to	ıets	s ser	÷+
Hospitals and Sanatoriums	Type of Service	Ownership or Control	g	Averag	Bassine	Number of Births	dmf
	Seg.	55	ធ័	€Ö (Ħ	ZE	<
Ada, 1,938—Norman Norman County Memorial Hospital	. Gen	NPAssn	11	6	3	83	224
Adrian, 1,066—Nobles		NPAssn	14	6	G	95	304
Ah-gwah-ching, 15—Cass Minnesota State Sanator-	. TB	State	480	402			459
	. Gen	NPAssn	72	63	14	557	3,293
	. Gen Gen	NPAssn Indiv	20 20	11 14	6	62 58	376 510
Anoka, 6,426-Anoka	Gen	Indiv	12	6 1,424	6	100	276 E9
	Ment Gen	State 1	20		5	50	531
	Gen	Church	130	53 2	5	4G3 2	,476
Ulter wer		County	45	43 .			41
torium		NPAssn	60	45 1	2	259 2	ein,
Lutheran Hospital Benson, 2,729—Swift Swift County Hospital		NPAssn	20	12	5	14*	C27
Swift County Hospital							

Resultal and Sanaterlum Fig. Fi	MINNESOTA—Continued								MINNESOTA—Continued						
Part	MINNE	011-				m	Į.	ì							
The property Gen Control Gen G	Hospitals and Sanatoriums	Type of Service	Ownershi or Contr	Beds	Average Census †	Bassinet	Number of Births	Admis sions †							
Bank Horselful Graphic Graph	Thiel Hospital	Gen	NPAssn	20	9	8	114	512	Hutchinson Community Hos-						
The Dark Properties Graph	Biwabik Hospital	Gen	Indiv	12	5	5	80	295	Jackson, 2,840—Jackson						
Bachan Hopstell Section Graph India 2 8 6 8 8 8 8 8 8 8 8	Blue Earth Hospital	Gen	Indiv	10	4	4	56	180	Lake City, 3,204—Wabasha Lake City, Hospital Gen NPAssn 30 18 8 96 732						
Bigstanger, Steam Public Gen Church 60 81 10 81 10 10 10 10 1	Braham Hospital	Gen	Indiv	12	8	5	68	388							
Second Control Contr	St. Joseph's Hospital	Gen	Church	73	53	15	385	2,122	i Litermen Hospital Gen Massa 45 50 5 155 1,010						
Cathin Hospital Gen Cath	St. Francis Hospital	Gen	Church	60	43	10	331	1,681	Little Falls, 6,047—Morrison St. Gabriel's Hospital Gen. Church 90 30 12 267 1,391						
March Color Colo	Catlin Hospital	Gen	Part	12	3	4	19	100	Littlefork, 608—Koochiching Littlefork Hospital Gen NPAssn 99 13 8 128 611						
Second Control Contr	Minneosa Colony for Ephep	MeDe	State 1	1,108	1,061			79	Long Prairie, 2,311—Todd Long Prairie_Hospital . Gen NPAssn 20 Reorganized						
Second Control Contr	Canby, 2,099—Yellow Medicine								Luverne, 3,114—Rock Luverne Hospital Gen NPAssn 16 7 6 136 526						
Control Cont	pital Cannon Falls, 1,544—Goodhue			_			85		Ebenezer Lutheran Hosp Gen Charen 20 15 : 65 401						
Charlefel, John-Evillance Chestella, John-Evilla, Gen Church John-Evillance Chestella, John-Evillan	Mineral Springs Sanatorium Cass Lake, 1,904—Cass						•		Mahnomen, 1,429—Mahnomen Mahnomen Hospital Gen Indiv 15 13 4 37 294						
Chebule, 1457—15 Louis Gen Part 15 8 3 3 8 20 Part 15 8 3 3 8 20 Part 15 10 5 7 7 8 20 Part 15 10 7 8 7 2 20 Part 15 10 7 8 7 2 20 Part 15 10 7 8 20 Part 15 10 8 7 7 8 20 Part 15 10 7 8 20 Part 15 10 8 7 7 8 20 Part 15 10 8 7 8 20 Part 15 10 8 8 20 P	Cass Lake Indian Hospital.	Gen Gen		20 32					Mankato, 15,654—Blue Earth Immanuel Hospital						
Mers Hospital Gene Gene Fart 12 10 3 7 301	Chatfield Hospital	Gen	Part	15	8	3	37	279	Marshall, 4,590—Lyon						
Charlefield Community Hosp. Gen A. Assen 10 7 4 72 516 62 52 52 63 63 64 52 63 64 64 64 64 64 64 64	Mesaba Clinic	Gen	Part	12	10	3	77	391	Marshall Hospital Gen NPAssn 30 10 5 47 356						
Ender Application Gen Nature 22 15 4 61 13 15 15 15 15 15 15 1	Clarkfield Community Hosp.	Gen	NPAsen	10	7	4	72	315	Melrose Hospital Gen Indiv 11 6 4 30 710						
Cacheton, Julis-Wright Gen Indiv 13 7 4 51 50 50 50 50 50 50 50	Fond du Lac Indian Hosp					4			Abbott Hospital* Gen Church 140 131 22 590 5,201						
Pairty P	Cokato, 1,175—Wright								Eitel Hospital+40 Gen NPAssn 120 102 18 444 5,281						
St. Vincent's Hospital Sumprest Sanstrorum Gen Church 20 4 6 74 500 188 1,795 188 1,795 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189 189	Crookston, 7,161—Polk								Fairview Hospital+40 GenTb Church 155 116 30 760 4,757						
Cross Cros	St. Vincent's Hospital	Gen	Church	60	43	10	183	1,291	George Chase Christian Me- morial Cancer Institute Unit of University Hospitals						
Davson Bospital Gen	Crosby, 2,954—Crow Wing								Harriet Walker Hospital Mat NPAssn 72 50 40 160 160						
Detrood, 1706—Crow Wark Detrood, 1706—Crow Wark Detrood, 1706—Crow Wark Detrood Sanatorium TB Countes 27 22	Dawson, 1,646—Lac qui Parle								Lutheran Deaconess Home and Hospital+A0 Gen Church 120 111 30 721 4,924						
Devict Lakes, 5,018—Becker St Mary's Hospital Gen Clurch 50 19 15 219 1,172	Deerwood, 570-Crow Wing						10		Maternity Hospital Mat NPAssn 36 29 43 923 1,130 Minneapolis General Hos-						
Delication Del	Detroit Lakes, 5,015—Becker					15	910		Minnesota General Hospital . See University Hospitals						
St. Mary's Hospital As Gen Gen Part 15 11 6 10 10 10 10 10 10	Duluth, 101,065—St. Louis					10	210	-	Ripley Memorial Hospital Unit of Maternity Hospital						
Shipman Gen Indiv 40 23 10 105 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925 1,925	St Luke's Hospital*+A	Gen	NPAssn	237	203			6 S05	St. Barnabas Hospital*A0 Gen NPAssn 135 103 30 791 4,680 St. Marris Hospital*A0 Gen Church 270 212 45 1 152 7 778						
More Hospital and Climes Gen Corp 30 15 8 131 602	Webber Hospital								Shriners Hospital for Crip-						
More Hospital and Climes Gen Corp 30 15 8 131 602	Shipman Hospital	Gen	Part	15	11	6	64	330	Swedish Hospital** Gen NPAssn 240 244 50 1,321 9,050 Todd Memorial Eye, Ear, Nose						
Balley Hospital Gen Indiv 10 4 6 49 712 712 712 712 712 712 712 713 712 713 713 713 714 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 715 71	More Hospital and Clinic▲	Gen	Corp	30	15	8	131		and Throat Hospital Unit of University Hospitals University Hospitals*** Gen State 475 367 25 383 8.850						
Hunt Hospital Gen Part 12 5 6 82 24 170	Bailey Hospital	Gen	Corp	36	12	12	87	472	TB Vet 179 157 1,851						
St Luces Example Annual MeDe State 2,535 2,443 17 24 255	Gardner Hospital	Gen							Hospital Unit of University Hospitals						
St Luens Expangelleal Deacon cest Hospitallo Gen Church 60 40 18 313 1,052 Farmington, 1,550—Dakota Gen KPAssn 11 3 5 5 62 129 Sanford Hospital Gen KPAssn 28 15 5 41 410 Forgus Falls Jokas—Otter Tail Forgus Falls State Hospital Ment Gen KPAssn 30 20 10 218 1,041 Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 1,510 20 1,710 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 20 10 218 1,041 Forston Hospital Gen KPAssn 30 20 20 20 20 20 20 20 20 20 20 20 20 20	Minnesota School for Feeble	35.730	State	0 595	0 112	17	94	955							
Farmington, 1580—Dakoth Gen NPAss 11 3 5 52 129 Sanford Hospital Gen NPAss 28 15 5 41 410 Sanford Hospital Gen NPAss 28 15 5 41 410 Sanford Hospital Gen NPAss 50 27 12 185 1,944 Hospital Hospital Gen NPAss 50 27 12 185 1,944 Hospital Hospital Hospital Gen NPAss 50 27 12 185 1,944 Hospital	St Lucas Evangelical Deaco	n.				_			St Ansgars Hospital Gen Church 50 33 10 233 1,355						
St. Luke's Hospital									Moose Lake Community Hos						
St. Luke's Hospital	Sanford Hospital Fergus Falls, 10,848—Otter Tail	Gen	NPAssn			5	41		Morris, 3,214—Stevens						
St. Luke's Hospital	Fergus Falls State Hospita George B. Wright Memorial	1 Ment					•		Stevens County Hospital Gen NPAssn 18 11 5 123 494						
Station Hospital Gen Arm3 177 119 S 29 1,719 New Prague 1,645—Le Sueur New Prague Community Hospital Gen	St Luke's Hospital	0.04.							Bethel Hospital Gen Church 23 10 8 105 263						
Fosston Hospital Gen Part 15 13 6 105 340 Part 15 16 105 340 Part 15 15 15 15 15 15 15 1	Station Hospital	Gen	Army	177	119	8	29	1,719	New Prague, 1,645—Le Sueur New Prague Community Hos						
Hospital Gen City 27 17 10 121 724 Loretto Hospital Gen Clurch 45 32 10 182 990	Posston Hospital	Gen	Part	15	13	6			pital						
Grand Rapids, 4,875—Itacca Hasca County Hospital Gen Granite Falls, 2,388—\ lellow Medicine Granite Falls, 2,388—\ lellow Medicine Granite Falls, 1,338—\ lellow Medicine Granite Falls, 2,388—\ lellow Medicine Granite Falls Hospital Gen KPAssa 15 S 5 77 386 Northfield (Ety Hospital Gen KTerrace, 200—Hennepin Christian Memorial Tuberculosis Unit of Glen Lake Sanatorium Line	Iosp	. Gen	City	27	17	10	121	724	Union Hospital Gen NPAssn 60 40 12 196 1.213						
Riverside Sanatorium . TB Counties 45 57	Hospital	. Gen	NPAssn	30	20	в	157	852	Nopeming Sanatorium+1TB County 280 261 201 Northfield 4.533—Rice						
Riverside Sanatorium . TB Counties 45 57	Itasca County Hospitals Granite Falls 2 355—Vallow Me	Gen	County	55	53	15	428	1,773	Northfield City HospitalGen City 26 14 10 1°2 662 Oak Terrace, 200—Hennepin						
Rittson Kittson Kitt	Riverside Sanatorium	Gen							Unit of Gien Lake Sanatorium						
Hastings, 5,662—Dalota	Kittson War Veterans' Me		NTD I	00	00		100	ro.							
Reform Lake, 852—Jackson Southwestern Minnesota Hospital H	Hastings, 5,662—Dakota	. Gen	APAssn Stote			IJ									
Heron Lake, 552—Jackson Southwestern Minnesota Hos. Gen Indiv 10 7 3 42 297 Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—Pine City, 1,718—P		. даень	NPAssn			6			Parkers Prairie, 781—Otter Tail Leihold Hospital Gen Indiv 16 6 4 65 254						
Hibbing, 16,385—St. Louis Adams Hospital Gen Indiv 25 12 6 133 815 Pine River, 574—Cass Hibbing General Hospital Gen Church 120 20 Estab. 1942 Pine River Hospital Gen Indiv 20 17 5 54 515	Southwestern Minnesota Ho	۰۶۰							Perham, 1,534—Otter Tail St. James' Hospital Gen Church 40 19 6 151 778						
Hibbing General Hospital Gen Church 120 20 Estab. 1942 Pine River Hospital Gen Indiv 20 17 5 51 515	Hibbing, 16,385—St. Louis	Gen							1 Lakeside Memorial Hospital, Gen APAssn 20 13 6 74 462						
	Hibbing General Hospital	Gen		120		20	Estat	. 1942	Pine River Hospital Gen Indiv 20 17 5 54 515						

MINNE	АТОЗ	Cont	inne	ьd				MARCH 28, 1942
					m	of		MINNESOTA—Continued
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Bcds	Average Census †	Bassinets	Number of Births	Admis- sions †	Type of Scrybe of Scrybe of Control or Contr
Plpestone, 4,682—Pipestone Ashton Memorial Hospital	Gen	NPAssn	45	31	10		1,490	Waseca, 4,270—Waseca Waseca Memorial Hospital Gen City 28 16 11 172 661
Pokegama, 59—Pine Pokegama Sanatorium	GenTb	NPAssn	42	21	5	40	298	White Earth, 350—Becker
Northwestern Hospital		Indiv	25	8	4	37	407	Willmar, 7,623—Kandiyohi Rice Memorial Hospital Con City
Puposky, 75—Beltramı Lake Julia Tuberculosis Sana-	mp	Can-41		24				Windom, 2,807—Cottonwood
torium	Con	Counties	57 27	51			60	Windom Hospital Gen NPAssn 15 10 5 83 397 Winnebago, 1,992—Faribault Winnebago Community Hos-
Red Wing 9 962—Goodhua		IA City	40	16 30		80 97	562 805	winnesses Community Hos- pital
Red Wing Hospital St. John's Hospital Redwood Falls, 3,270—Redwood	Gen	NPAssn	80		15	339	2,174	Winona General Hospital [*] . Gen NPAssn 112 55 20 418 2,307 Worthington, 5,918—Nobles
Redwood Falls Hospital	Gen	Part	15	8	4	73	515	Southwestern Minnesota Sana- torium
Richmond Hospital Rochester, 26,312—Olmsted Colonial Hospital	Gen	NPAssn	12	4	4	57	357	Worthington Hospital Gen Part 23 21 12 242 1,008
Kanier Hospitaiao	Gen	Corp Corp	258 126	229 82			8,328 3,443	Related Institutions Bubl, 1,600—St. Louis Range Hospital
Rochester State Hospital St. Mary's Hospital Worrall Hospital Ske	Ment Gen	State Church	1,631 743	1,556 518			693 13,056	Fileworth 600 Nobles
Roseau, 1,775—Roseau Budd Hospital		NPAssn	188 25	134 10		66	7,378 465	l Elv. 5.970—St. Louis
Rush City, 1,020—Chisago		City	20	10		Estab,		Hastings, 5,662—Dakota St. Francis Hospital Gen NPAssn 25 15 4 35 231
Rush City Hospital St. Cloud, 24,173—Stearns Minnesota State Reformator,	v	0.03		•••	,		1011	Madelia, 1,652—Watonwan Madelia Hospital Gen City 13 4 4 41 123
Hospital	Inst	State Church	30 212	15 161	30	724	497 5,076	Minneapolis, 492,370—Hennepin Glenwood Hills Hospitals N&M NPAssn 58 33 277
Veterans Admin. Facility St. James, 3,400-Watonwan	Ment		1,087	1,071	••	•••	229	Homewood Hospital Unit of Glenwood Hills Hospitals Lymanhurst Health Cent CardChil City 40 26 106 Minneapolis Sanitarlum N&M Indiv 24 21 42
St. James Hospital St. Paul, 287,736—Ramsey	Gen	Church	26 650	400	10	114	694 9,960	Minnesota Soldiers' Home Hospital
Ancker Hospital*+40 Bethesda Hospital*40	TB	CyCo CyCo Church	200 141	194 132		•••	119 5,559	Parkview Sanatorium Chr City 175 139 755 Rest Hospital N&M Part 19 9 165
Charles T. Miller Hosp.***. Children's Hospital**	Gen Chil	NPAssn NPAssn	220 65	178 32	30	892	6,532 1,644	Vocational Nursing Home Conv NPAssn 42 42 31 Women's Welfare League
Gillette State Hospital for Crippled Children+40		State	250	000			761	Home for Convalescents. Conv NPAssn 25 17 76 Nicollet, 434—Nicollet Nicollet Hospital Gen India 10 2 3 25 123
Midway Hospital+40	Gen	Church Church	100 103	96 97	25 12	680 295	3,426 1,983	Owatonna, 8,694—Steele
Northern Pacific Beneficial Association Hospital+4		NPAssn	135	85	12	122	2,833	Minnesota State Public School Hospital
Ramsey County Tuberculosis Pavilion	Unit of	f Ancker Church	Hosy 65	ital 49	15	278	2,200	Pellcan Rapids, 1,560—Otter Tail Dr. Boysen's Hospital
St. John's Hospital* St. Joseph's Hospital** St. Luke's Hospital*	Gen	Church NPAssn	250 150	209	32	1,002 ta sup	8,677	Pipestone, 4,682—Pipestone Pipestone General Indian
Columntion Army Booth Ma-		Church	75	42	11	108	126	Hospital Gen IA 42 20 4 21 395 Red Wing, 9,962—Goodhue
morial Hospital West Side General Hospit 1A St. Peter, 5,870—Nicollet Community Hospital St. Peter State Hospital+A©	Gen	Church	55		15	328 225	1,828	Minnesota State Training School for Boys Inst State 36 14 1,074
St. Peter State Hospital	Gen Ment	City State :	29 2,306	14 2,175		220	718 607	St. Paul, 287,736—Ramsey Children's Preventorium of
Shakopee, 2,418—Scott St. Francis Hospital Shakopee Hospital	Gen	Church Indiv	13 16	12 6	5 6	138 15	538 286	Samaritan Hospital Gen NPAssn 26 10 6 176 419
Slayton, 1,587—Murray		NPAssn	25	16		95	590	Sauk Centre, 3,016—Stearns Long Hospital
Springfield, 2,361—Brown St. John's Hospital		Church	23	12	5	128	644	Mudeura Sanitarium Conv Corp 80 23
Spring Grove, 967—Houston		Corp	15	C	5	77	366	Gen NPAssn 15 5 3 33 188
Staples, 2,952—Todd Municipal Hospital	Gen	City	23	10	5	66	376	Gen Indiv 14 4 42 120
Starbuck, 972—Pope Minnewaska Hospital Stillwater, 7,013—Washington	Gen	NPAssn	15	11	4	63	303	MISSISSIPPI
Minnesota State Prison Hos-		CyCo	42	25	8		1,057	of control of the con
pital	ron.	State	65 25	19 17	9	228	576 794	Hospitals of Service Control Beds Average Control Burshar Average Control Burshars of Burshars of Burshars of Burshars of Service Control Service Control Service Control Service Control Service Control Service Service Control Service Ser
Mercy Hospital	TB	NPAssn Counties NPAssn	65 39			63	34 744	Aberdeen, 4.746—Monroe
St. Luke's Hospital Tracy, 3,095—Lyon Clinic Hospital		Part	14	6	5	50	288	Aberdeen Hospital
Tracy Hospital	Gen	NPAssn	33	17	8	103 42	757 162	Baldwyn, 1,279—Lee Baldwyn Hospital Gen Indiv 14 5 1 26 226
Truman Hospital		Indiv Dort	9 30	4 19	3 6	107	650	Biloxi, 17,475—Harrison New Biloxi Hospitalo Gen NPAssn 50 33 8 245 1,670 1,627
Two Harbors Hospital		Part City	36	17		165	800	Veterans Admin, Facility Gen vet Booneville, 1,893—Prentiss
Tyler, 1,005 pital Tyler Hospital Virginia, 12,264—St. Louis Virginia Municipal Hospital.		City	102	36	23	325	1,578	pitalo Gen NPAssn 40 18 3
ium	TB	Counties	30 50	24 18	·;	96	23 667	Gen Indiv 23 2 5 60 (61
oital	Gen	Church	59 18	18 8	4	27	287	Gen APASSN 34 Estab. 1949
	•	Indiv Counties	36	34	••		23	Gen Many Madison
Fair Oaks Lodge Sanatorium Wesley Hospital	Gen	Church	43	25		194 1	. (Company 10 April 20 14 4 96 639
Walker Hospital	Gen	Indiv	16 30	14	4 6	50 81 3	196	. Gen Indiv 20 7 2 40 50
Warren Hospitala		Church City	30 21	14 11	5	55	403	. Gen NPAssn 32 6 10 101 549
Warroad Hospital	กรม	-113	Κε					viations is on page 1071
								•

MISSISSIP	PICont	inue	i				MISSISSIPPI—Continued					
Hospitals and Sanatoriums	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions t	Hospitals of Service Ownership or Control Beds Average Census † Bussinets Butths Admis-slons †					
Cleveland, 4,189—Bolivar							Sanatorium, 200—Simpson					
City Hospital Gen Columbia, 6.064—Marion		22 35	11	4	63	484	Mississippi State Tuberculosis Sanatorium+A0TB State 425 315 422					
Columbia Clinic-Hospital. Gen Columbus, 13,645—Lowndes Columbus Hospital Gen		25	20 8	4 7	92	1,424 498	Shelby, 1,956—Bolivar Hall Clinic and Hospital Gen NPAssn 35 6 6 21 213 Starkyllic, 4,900—Oktibbeha					
Doster Hospitalo Gen Corinth, 7,818—Alcorn	Indiv	35	14	5	36	623	Oktibbeha Hospital Gen Indiv 21 9 3 36 472 State College, 300—Oktibbeha					
Corinth Hospital Gen McRae Hospital Gen	Part NPAssn	20 35	8 14	5 5	84 39	462 507	James Z. George Memorial Hospital					
Greenville, 20,892—Washington Kings Daughters Hosp. 40 Gen Greenwood, 14,767—Leffore	NPAssn	100	60	14	134	2,450	Tupelo, 8,212—Lee North Mississippi Community Hospital					
Greenwood Colored Hospital Ger Greenwood-Leflore Hospital Ger	Indiv CyCo	16 50	12 31	2 8	10 184	392 1,526	Tylertown, 1,376—Walthall Tylertown Hospital Gen NPAssn 16 12 2 101 871					
Grenada, 5,831—Grenada Grenada General Hospital Gen		5 5	23	5	86	1,541	Waithall Hospital					
Gulfport, 15,195—Harrison Kings Daughters Hospital. Gen Veterans Admin. Facility Mer		75 788	29 758	 	312	1,564 372	Vicksburg, 24,460—Warren Mississippi State Charity					
Hattiesburg, 21,026—Forrest Methodist Hospitalo Gen		• 75	51		4S1	2,687	Hospital ⁴					
South Mississippi Infirm-	Indiv	65	19	10	46	881	Vicksburg Infirmary▲○ Gen NPAssn 50 45 4 68 1,750 Vicksburg Sanitarium▲○ Gen NPAssn 87 52 9 134 2,621					
Houston, 1,729—Chickasaw Houston Hospital • Gen	NPAssn	35	17	5	30	651	Water Valley, 3,340—Yalobusha Water Valley Hospital Gen Part 25 10 4 28 349 Whitfield, 300—Rankin					
Indianola, 3,604—Sunflower Kings Daughters Hospital Gen Jackson, 62,107—Hinds	NPAssn	23	16	3	48	712	Mississippi State Hospital. Ment State 3,628 3,348 1,960 Winona, 2,532—Montgomery					
Jackson Infirmary Ger Mississippi Baptist Hosp Ger		80 163		14 22		3,282 6,471	Winona Infirmary 4 Gen NPAssn 30 15 4 41 637 Yazoo City, 7,258—Yazoo					
Mississippi State Charity Hos- pitalo	State	100	78	6	68	4,170	Kings Daughters Hospital. Gen NPAssn 30 11 3 58 730 Yazoo Clinic and Hospital. Gen Part 20 12 3 24 503					
Welch's Sanitarium N& Dr. Willis Walley Hospital. Ger		21 70	11 13	6	30	150 397	Related Institutions					
Kosciusko, 4,291—Attala Montfort Jones Memorial HospitalGer	СуСо	36	16	8	51	795	Bay St. Louis, 4,138—Hancock Kings Daughters and Sons Hospital					
Lambert, 1,016—Quitman Lambert Hospital Ger		10				plied	Biloxi, 17,475—Harrison Jefferson Davis Soldiers Home					
Laurel, 20,598—Jones Laurel General Hospital Ger		53	26	6		2,313	(Beauvoir Hospital) Inst State 40 30 23 Columbia, 6,064—Marion					
South Mississippi Charity Hospitalo Ger	State	103	56	17	230	3,342	Applewhite Hospital Gen Indiv 8 12 2 72 300 Ellisville, 2,607—Jones					
Lexington, 2,930—Holmes Holmes County Community Hospital	County	25	9	2	58	563	Ellisville State SchoolMeDe State 410 400 40 Greenville, 20,892—Washington Colored Kings Daughters					
Liberty, 665—Amite Marion Butler Memorial Hos-	County		·	-	00	000	Hospital					
pital Ger Lumberton, 1,485—Lamar		8	2	2	7	114	Hinds County Tuberculosis HospitalTB County 34 No data supplied					
City Hospital Ger Macon, 2,261—Noxubee		24 25	11 14	5	86 30	390 584	University, 15—Lafayette University of Mississippi Hos- pital					
Macon Hospital Ger Magee, 1,221—Simpson Magee General Hospital Ger	_	28	12	4	76	698						
Marks, 1,818—Quitman Marks HospitalGer		20	9	2	148	618	MISSOURI					
McComb, 9,898—Pike McComb City Hospital Ger		27	13	4	89	994	oof eerof					
McComb Infirmary Ger Meridian, 35,481—Lauderdale	NPAssn	26	16	4	78	974	Service Consust the Bassinets Bassinets Number of Births Sions the Service of Service or Control Consust the Consus the Consus the Consus the Consus the Consus th					
Anderson Infirmary Ger East Mississippi State Hosp. Mer	it State	45 850	833		117	819 310	Bethany, 2,682—Harrison Bethany Hospital and Clinic Gen Indiv 15 10 5 43 378					
Hoye's Sanitarium N& Lewis Hospital Ger	Indiv	26 15	12 5	4	32	249 499 2,999	Bonne Terre, 3,730—St. Francois Bonne Terre Hospital Gen NPAssn 32 25 8 128 796					
Matty Hersee Hospital Ger Meridian Sanitarium. Ger	Indiv	85 65 45	64 30 18		170	2,010 1,083	Boonville, 6,089—Cooper St. Joseph's Hospital 40 Gen Church 75 27 14 78 1 045					
Riley's Hospital Ger Rush's Infirmary 4 · Ger Morton, 934—Scott	Indiv NPAssn	70	40	6		2,275	Brookfield, 6,174—Linn Brookfield Hospital Gen NPAssn 14 8 4 24 250					
Scott County Hospital Ger Natchez, 15,296—Adams	Part	21	8	3	61	730	Butler, 2,958—Bates Butler Memorial Hospital Gen Indly 20 11 4 108 811 California, 2,525—Moniteau					
Natchez Charity Hospital Ger Natchez Sanatorium	n State NPAssn	85 50	63 20	14 5	508 139	1,957 1,024	Latham Sanitarium Gen Indiv 33 10 2 3 1,000 Cape Girardeau 19.426—Cape Girardeau					
New Albany, 3,602—Union Mayes Hospital Ger		32	18	3	162	804	St. Francis Hospital Gen Church 104 65 15 446 9 698					
New Albany Hospital and Clinic	n NPAssa	12	5	2	33	299	Southeast Missouri Hospital, Gen NPAssn 65 45 14 214 1,605 Carthage, 10,585—Jasper McCune-Brooks Hospital Gen City 38 16 6 185 1,770 Cassyille 1 214 Parry					
Newton, 1,800—Newton Newton Infirmary Ger Okolona, 2,117—Chickasaw	n NPAssn	25	8	3	51	599	Cassville, 1,214—Barry Barry County Hospital and Clinic					
City Hospital Ger Oxford, 3,433—Lafavette		17	4	3	10	225	Clayton, 13,069—St. Louis St. Louis County Hosp.*+A Gen County 175 151 35 551 3.700					
Bramlett Hospital		35 30	17 24	9 5	67 105	1,000 1,396	Columbia, 18,309—Boone Boone County General Hos-					
Pascagoula, 5,900—Jackson Jackson County Hospital Gel Philadelphia, 3,711—Neshoba Choctaw-Mississippi Indian	County	33	23	10	191	1,534	pitulA					
Choctaw-Mississippi Indian Hospital Ger Philadelphia Hospital Ger	IA.	35	18	7	47	790	Noyes Hospital Unit of University Hospitals Parker Memorial Hospital Unit of University Hospitals					
Philadelphia Hospital Get Picayune, 5,129—Pearl River Martin Sanatorium Get		28 22	16 6	8 2	57 55	686 305	State Hospital for Crippled Children					
Pontotoc, 1,832—Pontotoc Pontotoc Clinic Ger	n Part	15	6	2	40	200	Excelsior Springs, 4,864—Clay Excelsor Springs Sanitarium					
Poplarville Hospital Ger		26	9	2	18	800	and Hornital Con Conn of to f to con					
Rosedale, 2,063—Bolivar Dr. Nobles' Clinic Ger Rosedale-Bolivar County Hos-	Indiv	25	16	1	10	585	Ann.					
pltalGe	n City	18	8	2		325	' Lee Hospital					
		K	Ey to :	symb	ols at	nd abbr	eviations is on page 1071					

MISSOUR	RICo	ntinue	đ				ì
Hospitals and Sanatoriums	Service Ownership or Control		Beds Average	Census r Bassinets	Number of	ths nis-	Hospit
Fulton, 8,297—Callaway	Ser Or	,	Averg	Bak	N C	Births Admis-	St. Jose
Callaway Hospital Ger State Hospital No. 1+4 Mer	ı Cou at Stat	nty 3 e 2,72			7 10	07 839 60	Misson
Hannibal, 20.865—Marion Levering Hospital St. Elizabeth's Hospital Ger Independence, 16,066—Jackson	n City n Chui	ech 7		6 15 6 15	5 23	58 1,998 18 2,458	State St. Loui
Independence Sanitarium and Hospital* Ironton, 1,083—Iron Arcadia Valley Hospital, St.	n Chui	ch 6	8 6	1 21	. 51	10 2,560	cer Barnes Bethes
Jefferson Barracks —St Louis		ch 3	0 2	5 5	i ε	01 594	Christ City I City S
Station Hospital Ger Veterans Admin. Facility Ger Jefferson City, 24,268—Cole Missouri State Penitentiary	n Arm Vet	y 17 519				9 1,654 . 4,279	De Pa
St. Mary's Hospital Gen	t State				40	. 3,600 5 3,471	Firmin Frisco
Joplin, 37,144—Jasper Freeman Hospital	Chur Chur				18 34	6 1,733	Homer pital Jewish
Kansas City, 399,178—Jackson Children's Mercy Hosp.+4©. Chi	NPA:	sn 145	125	·		. 2,834	Joseph Hosp
Fairmount Maternity Hosp. Mat Kansas City General Hos- pital*+A0	: Corp City	50 600			12:	9 152 9 10,183	Luther Missou Missou
Kansas City General Hospital No. 2*40	-	225			437	-	Mt. St. Park I
culosis Hospital+▲ TR	City	247 35					Peoples Robert St. Ann
Major Clinie N&: Menorah Hospital** Gen Municipal Contagious Disease		sn 137	114	25	378	applied 3 4,114	St. Ant
Hospital	M NPAS	sn 43	27	• •	iqzoF	330	St. Lou pital ⁴ St. Lou
Ralph Sanitarium Dru Research Hospital** Gen St. Joseph Hospital** Gen	NPAs	20 sn 186	165	25	583		St. Lou St. Lou pital+
St. Luke's Hospital*+40 Gen St. Mary's Hospital*+40 Gen	Churc Churc Churc	h 236	204 214	27	1,075 737	6.966	St. Luk St. Mar
St. Vincent Hospital Mat	Churc	h 42	19	35	708 383	362	pitals St. Mar
Trinity Lutheran Hosp.*A. Gen Wesley Hospital Gen Wheatley-Provident Hosp.*A Gen	Churc	h 50	90 17	25 10	497 37	527	St. Mar
Willows Maternity Sani-	NPAs		33	3	40		Shriners
tarium Mat Kennett, 6,335—Dunklin Presnell Hospital Gen	Indiv Part	75 35	30 13	75 12	132		Sedalia, 20 John H
Kirksville, 10,080—Adair Grim-Smith Hospital and Clinic	Corn	38	30	6	47 86		Hospi Sikeston, Sikeston
Stickler Hospital Gen Kirkwood, 12,132—St. Louis Oakland Park Hospital N&N	Corp	25	10	5	22	387	Smithville Smithville
Oakland Park Hospital N&M U. S. Marine Hospital* Gen Koch, 900—St. Louis Robert Koch Hospital** TB	I Corp USPE	IS 144	8 115	••	•••	19 1,402	Springfield Burge E City Ho
Robert Koch Hospital+4 TB Lamar, 2,992—Barton	City	688	623		•••	550	Medical Prison
Lamar Hospital Gen Lebanon, 5,025—Laclede	NPAss	n 9	3	3	112	226	St. John Springfie
Louise G. Wallace Hospital. Gen Little Blue, 50—Jackson	NPAss	n 24	29	5	108	1,300	Trenton, 7 Cullers
Rural Jackson County Emergency Hospital Gen Louisiana, 4,669—Pike	Count	y 43	34	9	263	1,371	Wright Washingto St. Fran
Pike County Hospital Gen Marceline, 3,206—Linn	Count	y 50	24	11	83	972	Webb City Jasper C
B. B. Putman Memorial Hos- pital	Indiv	12	5	4	27	217	Hospit Webster Gr Glenwood
Georgia Brown Blosser Home for Crippled Children Orth John Fitzgibbon Memorial	NPAss	n 60	37			243	West Plain Christa 1
Hospital. Gen Maryville, 5,700-Nodaway	NPAss	n 32	16	5	84	757	Rela Independen
St. Francis Hospital Gen	Church	1 80	40	12	271	1,684	Vaile Sar Kansas Cit
Mexico, 9,053—Audrain Audrain Hospital Gen Moberly, 12,920—Randolph	County			10	189	1,397	Florence Florence
Wabash Employes' Hosp. Indus			16 25	5 5	45 70	550 526 778	Girls Trowbrid Nervous
Woodland Hospital Gen Mt. Vernon, 1,982—Lawrence Missouri State Sanatorium TB	Corp State	35 780	21 742			964	dren Liberty, 3,5
Neosho, 5,318—Newton Sale-Bowman Hospital Gen	Part	30	16	6	154	804	Missouri Hospita
Nevada, 8,181—Vernon Nevada Hospital Gen State Hospital No. 34 Ment	City State	27 2,053	14 2,000	6	78	653 667	Marshall, 8, Missouri l and Fe
Brandon Hospital Gen	Indiv	40	11	4	21	460	Marthasville Evangelie
Lucy Lee Hospital Gen Poplar Bluff Hospital Gen	Indiv Indiv	40 65		11 10		1,146 1,825	for Epil
Robertson, 300—St. Louis Jewish Sanatorium TB	NPAssi	108	64	••		138	Mountain G. Ryan Hos
Rolla, 5,141—Phelps Missouri Trachoma Hospital Trach Nelle McFarland Memorial	State	65		• •	•••	349	Rolla, 5,141- Missouri S
Hospital Gen	Indiv	62	30	8		1,155	Hospital St. Charles, Evangelies
St. Joseph's Hospital* Gen St. James, 1.812—Phelps	Church	55 10		12 7	24S :	1,485	for Epile
St. James Hospital Gen	Indiv	19 Kcy					iations is on

			MARCH 28, 19	742
MISSOU	RIC	ontinue	4	
_			¥	
7	Service Ownership or Control		st st ets rrof	
Hospitals and Sanatoriums	Service Ownersh or Conti	2	Average Census † Bassinets Number o Births	+
St Toponh by his D. I.	Ser	Beds	Ave Cen Bas Birth	og.
St. Joseph, 75,711—Buchanan Missouri Methodist Hosp.** Ge	n Chu		103 20 432 4,0	
ot. Jusedn's Hospitai*Ao Go	n Chi	rch 148	83 20 434 3.0	
State Hospital No. 2+4 Mo St. Louis, 816,048—St. Louis City	ent Stat	e 2,952		707
Alexian Brothers Hosp. + Ao. Ge	n Chui	rch 176	112 1,5	10
Barnard Free Skin and Can-		44		
cer Hospital+4 SkCa Barnes Hospital++40 Ge	ncer NPA n Chui	ssn 44 ch 425	38 1,1 321 11,7	
Bethesua General Hospital Ge	n NPA	.ssn 100	61 20 280 1,5	ūš
Christian Hospital+4 Ge	n NPA O City		58 25 423 2,0 90 1,4	
City Isolation Hospital+4 Iso City Sanitarium+4 Mo De Paul Hospital*+40 Ger	nt City	3,500	3.423 5	13
De Paul Hospital*+Ao Gei	n Chur	ch 250	241 35 1,383 11,00	50
Evangelical Deaconess Home and Hospital** Faith Hospital Ger Firmin Desloge Hospital** Firmin Desloge Hospital* Firmin Desloge Hospital* Firmin Desloge Hospital*	n Chur	ch 174	166 45 1,045 7,8	
Firmin Desloge Hosnital*+40 Un	n NPA: it of St.	ssn 35 Marv's G	15 6 71 60 roup of Hospitals)7
Frisco Employes' Hospital Inc Homer G. Phillips Hos-	lus NPA	ssn 100	44 1,10):
Homer G. Phillips Hos-	n City	773	559 55 1,411 11,23	'n
pital*+▲○ Ger Jewish Hospital*+▲○ Ger	n NPA		201 33 659 7,30	ì
Josephine Heitkamp Memorial	Char	ch 40	30 10 288 1,33	'n
Hospital Ger Lutheran Hospital So. Ger Missouri Baptist Hosp. **A Ger Missouri Baptist Hosp. **A Ger	n Chur n Chur	ch 150	126 30 733 5,22	3
Missouri Baptist Hosp.*+▲ Ger Missouri Pacific Hospital Ind	Chure	ch 400 sn 300	256 30 425 6,51 138 4,55	
Mt. St. Rose Sanatorium+40 Uni	t of St. 1	Mary's Gi	oup of Hospitals	
Park Lane Memorial Hosp., Gen	NPAs	sn 120		
Peoples Hospital Gen Robert Koch Hospital See	Koch, Mi	sn 45 ssouri	39 5 86 918	,
St. Ann's Lying-In Hosp Mat	t Churc	n 30	5 25 105 118 154 50 1,380 5,288	
St. Anthony's Hospital*** Gen St. John's Hospital** Gen	Chure Chure		154 50 1,380 5,255 253 56 990 6,847	í
St. Louis Children's Hos-			2 210	
pital+▲○	NPAs: City	sn 195 1,530	127 3,653 727 67 1,763 15,151	
St. Louis Maternity Hos-			· ·	
pital+▲⊙ Mat St. Luke's Hospital*+▲◇ Gen	NPAss Churc		69 98 1,993 2,366 145 32 589 4,378	
St. Mary's Group of Hos-				
pitals*+▲◇ Gen St. Mary's Hospital*+▲◇ Unit	Th Churc	h 673 Iarv's Gra	563 71 1,626 11,676 oup of Hospitals	
St. Mary's Infirmary** Gen St. Vincent's Sanitarium* N&N	Church	1 140	93 10 311 5,202	
St. Vincent's Sanitarium N&I	I Church	h 250	222 200	
Shriners Hospital for Crip- pled Children+A Orth	NPAss	n 100	100 418	
dalia, 20,428—Pettis John H. Bothwell Memorial				
Hospital Gen	City	60	35 12 253 1,380	
Hospital Gen keston, 7,944—Scott	011-	10	7 4 36 211	
Sikeston General Hospital Gen nithville, 772—Clay	City	18		
Smithville Community Hosp. Gen	NPAssi	n 15	8 5 36 391	
ringfield, 61,238—Greene Burge Hospital▲ Gen	Church	75	63 10 376 2,787	
City Hospital Gen	City	21	9 4 127 609	
Medical Center for Federal Prisoners Ment'l	'b Fed	996 '	788 ::: 911	
st. John's Hospital Gen pringfield Baptist Hosp. 40 Gen	Church	100	78 20 471 5,100	
Springfield Baptist Hosp. 40 Gen	NPAssi	1 70		
enton, 7,046—Grundy Cullers Hospital Gen	Indiv	20	6 2 42 284	
Cullers Hospital Gen Vright Memorial Hospital Gen	NPAssn	18	0 1	
shington. 6.756—Franklin t. Francis Hospital Gen	Church	40	25 10 189 957	
bb City, 7,033—Jasper asper County Tuberculosis				
Hospital TB	County	115 1	12 162	
haten Cuorner 15 901 St Tonic	O	75	45 110	
lenwood Sanatorium N&M	Corp	75	05 053	
bster Groves, 16,334—55. Both lenwood Sanatorium N&M st Plains, 4,026—Howell hrista Hogan Hospital Gen	Indiv	15	9 1 35 25	
Related Institutions				
enendence, 16.066—Jackson	Tm 31~	95 6	20 25	
aile Sanitarium	Indiv	25 2		
lorence Crittenton Home Mat	NPAssn	23 2	3 8 31 42	
lorence Home for Colored	NPAssn	34 2	4 6 55 73	
Girls Mat rowbridge Training School for	MI Assu	51		
Nervous and Backward Unit-	Indiv	25 1	4 19	
dren MeDe erty, 3,598—Clay	пши		•	
issouri Odd Fellows Home	N'D Acen	65 C) ^{£90}	
Hospital Inst	NPAssn	v	•	
issouri State School-Ephersi	Stota 1	1,680 1,589	151	
and Feebleminded MeDe thasville, 321—Warren	State 1	1,000 2,000	· •	
angelical Emmaus Home			_	
for Entlepties and Feeble-	Church	100 105	10	
ntain Grove, 2,431—Wright			3 22 100	
an Hospitai	Indiv	10 4	J	
a, 5,141—Phelps ssouri School of Mines			417	
Hospital Inst	State	17 2	""	
maries, 10,805—St. Charles				
angelical Emmaus Home or Epileptics and Feeble-		***	26	
ninded MeDe	Church	150 140	•••	

MISSO	URI-	-Contir	nued					MONTANA—Continued	
	of e	ship atrol		ge +	ets	er of		Hospitals of Service Ownership or Control Or Control Bads Average Census † Bassinets Admis- of	-
Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admis- slons t	Service Ownership or Control Average Census † Bassinets Number of Bitths Admis-	stons †
St. James, 1,812—Phelps State Federal Soldiers Home	:						196	Missoula, 18,449—Missoula Northern Pacific Hospital Indus NPAssn 76 53 1,7	796
	Inst Vat	State Church	55 75		31	177	284	Thornton Hospital A Gen Part 35 26 8 179 1,2 Plentywood, 1,574—Sheridan	299
City Infirmary	Inst Inst me	City : NPAssn	1,035 123	966 75	::	•••	204 402	Sheridan Mémorial Hospital Gen NPAssn 16 10 5 73 4 Poplar, 1,442—Roosevelt Fort Peck Indian Agency	481
and Hospital	Cancer MeDe	Church City	68 506	68 468	::		65 37	Hospital	934 600
Valley Park, 2,091—St. Louis	Unit o	f St. Lou	is Chi	ildren'	s H	ospita	1	Musselshell Valley Hospital. Gen Indiv 20 10 6 70 6 St. Ignatius, 768—Lake Holy Family Hospital Gen Church 43 21 7 120 8	319
	Gen	Part	15	3	5	31	263	Holy Family Hospital Gen Church 43 21 7 120 8 Sidney, 2,978—Richland	
	Gen	Indiv	7	3	5	57	95	Townsend, 1,309—Broadwater	963
M	ONT	ANA						Warmspring, 1,900—Deerlodge	101 156
					5 0	jo		Wolf Point, 1,960—Roosevelt	862
	e of	ontr		age us †	inet	ber 18	<u>s</u> +	Related Institutions	104
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admis- sions †	Billings, 23,261—Yellowstone	
Anaconda, II,004—Deeriodge St. Ann's Hospital		Church	80		15		1,183	Great Falls, 29,928—Cascade	119 105
	Gen	Church	78	68	19	582	2,741	Helena, 15,056—Lewis and Clark	62
Bozeman, 8,655—Gallatin	Gen	Church	165		22		3,577	Lewis and Clark County Hos-	197
Bozeman Deaconess Hosp. Browning, 1,825—Glacier	. Gen	Church	64	47	12	279	1,846	Lewistown, 5,874—Fergus	254
Blackfeet Hospital Butte, 37,081—Silver Bow	. Gen	IA	45		12	142	1,052	Polson, 2,156—Lake	364
Murray Hospital*▲ St. James Hospital*▲	. Gen . Gen	Corp Church	100 147	74 93	20 33	355 606	2,722 3,628	Scobey, 1,311—Daniels	197
Silver Bow County Hospita Choteau, 1,181—Teton	l Gen	County	130	114	8	42	434	Shelby, 2,538—Toole	351
Choteau Hospital Conrad, 1,471—Pondera	Gen	Indiv	17	8	3	21	205	Terry, 1,012—Prairie Lutheran Good Samaritan	J1
St. Mary's Hospital Crow Agency, 350—Big Horn	. Gen	Church	58		10		1,167		263
Crow Agency Hospital Deer Lodge, 3,278—Powell		IA	39	21	7	83	1,117	NEBRASKA	
Montana State Tuberculosis Sanitarium	. TB	State	265	255	•;	:::	229		
St. Joseph Hospital Dillon, 3,014—Beaverhead		Church	35	34	8	134	443	Hospitals and Sanatorius as since of service	-
Barrett Hospital Eureka, 912—Lincoln		NPAssn Indiv	22 9	11 4	6 5	71 42	522 153	Hope of Service Control Beds Bassinets Bliths Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-Admis-	sions
Clark's Hospital Forsyth, 1,696—Rosebud Rosebud Community Hosp.	Gen.	Church	30	9	5	50	342	Ainsworth, 1,833—Brown	
Fort Benton, 1,227—Chouteau		Church	40	31	6		1,123	Alliance, 6,253—Box Butte	S0
St. Clare Hospital Fort Harrison, 550—Lewis and Veterans Admin. Facility	Clark	Vet	154	131		•••	768	Auburn, 3,639—Nemaha	
Fort Missoula (Missoula P.O.), CCC District Hospital	400-M		17			Estab.			33 49
Fort Peck, 4,000—Valley Fort Peck Hospital		Army	28	15			823		08
Glasgow, 3,799—Valley Frances Mahon Deaconess I									46
pital Valley County Hospital	. Gen	Church County	60 16	18 10	12 6	181 40	1,013 274		82
Glendive, 4,524—Dawson Dawson County Hospital	. Gen	County	30	15	5	55	272		50
Northern Pacific Hospital. Great Falls, 29,928—Cascade	. Gen	NPAssn	60	38	10	129	1,900	Beemer Hospital Gen Indiv 10 1 2 7 7	77
Montana Deaconess Hosp.	. Gen	Church Church	238 180	169 123	36 30	502 516	4,231 3,280	Morehouse Hospital Gen Indiv 10 4 Estab. 194 Blair, 3,289—Washington	1
Marcus Daly Memorial Hosp	. Gen	NPAssn	40	30	7	125	1,004	Blair Hospital	82
Montana Deaconess Hosp.' Mamilton, 2,332—Ravaill Marcus Daly Memorial Hosp Hardin, 1,886—Big Horn Hardin General Hospital Harlem, 1,166—Blaine Fort Pallyner Index	. Gen	Indiv	19	12	6	82	420	l Broken Bow Hospital Gen Indiv 35 10 4 11 89	29
		IA	48	25	8	95	799	Burwell, 1,412—Garfield Dr. Roy S. Cram's Hospital Gen Indiv 10 3 5 34 17 Cambridge, 1,084—Furnas	35
pital and Sanitarium Havre, 6,427—Hill Kennedy Deaconess Hosp.	Gen	Church	58		14		1,386	Republican Valley Hospital. Gen Indiv 25 5 2 13 10 Chadron. 4.262—Dawes)9
Sacred Heart Hospital Helena, 15,056—Lewis and Clar	. Gen	Church	76		13		1,957	Chadron Municipa: Hospital Gen City 25 12 7 63 60 Columbus, 7,632—Platte	10
St. John Hospital	. Gen	Church NPAssn	85 60	51 26	20 10	238 144	1,729 894	Lutheran Good Samaritan Hospital)1
Shodair Crippled Children's Hospital Jordan, 500—Garfield	. Orth	NPAssn	24	22	6		205	St. Mary's Hospital Gen Church 135 30 10 71 1,02 Dalton, 358—Cheyenne	
Lutheran Good Samoritan				**				Pioneer Memorial Hospital. Gen Indiv 10 2 4 56 23 David City, 2,272—Butler David City Hospital Gen NPAssn 13 4 4 29 20	
Hospital	. Gen	Church	20	13		918	232	David City HospitalGen NPAssn 13 4 4 29 20 Fairbury, 6,304—Jefferson Fairbury Hospital Con India 15 0 4 55 000	
Lame Deer, 89—Rosebud Tongue River Agency Hos-	. Gen	Church	43	23	10	218	1,179	Fairbury, 6,304—Jefferson Fairbury Hospital Gen Indiv 15 9 4 71 37 Fails City, 6,146—Richardson Our Lady of Perpetual Help	j
pitalLewistown 5.874—Fermis	. Gen	IA	50	29	6	40	911	Hospital	ю
pital Lewistown, 5,874—Fergus St. Joseph's Hospital* Libby, 1,837—Lincoln	. Gen	Church	120	74	16	230	2,508	Reeves Memorial Hospital Gen Indiv 10 2 3 24 18 Fort Crook, 75—Sarpy	:7
Libby Meneral Hospital	Gen	Indiv	15	10	4	100	312	Fort Crook, 75—Surpy Station Hospital Friend, 1,169—Saline Gen Army 50 32 60	13
Livingston, 6,642—Park Park Hospital Miles City, 7,313—Custer	. Gen	Indiv	22	9	6	51	635	Warren Memorial Hospital. Gen City 12 4 4 65 17 Genoa, 1,231—Nance	.3
Miles City Hospital (Holy Rosary Hospital)		Church	110	64	15	180	2,249	Emergency Hospital Gen Part 6 2 3 29 10 Genoa Hospital Gen Indiv 10 3 3 31 11	
						-			

NEBRA	SKA	Cont	inue	ď				NEDDACKA G	-
		ë G			ρΩ	10		NEBRASKA—Continued	
Hospitals and Sanatoriums	Type of Service	onership Control		Average Census †	Bassinets	Number	<u>.</u> +	Hospitals and Sanatorius Sypo of Strice Crarge Grange of the Salates the Salat	
mospitats and Sanatoriums	y pe	ON DO OF CA	Beds	Ver	nssi	E	Admis-	Average Control Bassinets Mumber o Billistis	-
Grand Island, 19,130—Hall Grand Island Lutheran Hos-		06	Ä	40	Ħ	Ź۴	A A	TO OU BE SEE TO	į
nital	Gen	Church	33	20	8 (13'	7 79	Coe Hospitel	
St. Francis Hospital AO Hastings, 15,145—Adams	Gen	Church	140	76	16	209		Winnehago, Fodor, Translat G	2
Mary Lanning Memorial Ho	g							Winnebago Indian Hospital. Gen IA 63 37 9 73 1,185 York, 5,383—York	3
pital A Hebron, 1,909—Thayer	Gen	NPAssn	90	55	15	270	2,161	100	2
Blue Valley Hospital Holdrege, 3,360—Phelps	Gen	Indiv	20	7	5	• • •	350	Related Institutions Beatrice, 10,883—Gage	
Holdrege Hospital	Gen	Part	16	10	5	45	391	Nebraska Institution for	
Humboldt, 1,386—Richardson Humboldt Hospital	Gan	Indiv	12	7				Treebleminded McDe State 1,695 1,455	3
Imperial, 1,195—Chase						41		Nebraska State Penitentiary	
Imperial Community Hosp Ingleside, 1,699—Adams	Gen	NPAssn	13	9	4	130	5 583	Billiord, 759—Seward	3
Hastings State Hospital+AO Kearney, 9,643—Buffalo	Ment	State	1,761	1,761	••		315		ŀ
Good Samaritan Hospital	Gen	Church	55	30		209	1,289	Olty Emergency Hospital Iso City 40 3	1
Hospital for the Tuberculous Kimball, 1,725—Kimball		State	200	151	••	•••	163	1 Horiai Hospitai Mat Church 71 39 18 25 169	
Flett Hospital	Gen	Indiv	9	6	4	G 5		Orchard, 493—Antelope	
Lexington, 3,688—Dawson		Part	10	5	4	23		Plainview 1411—Pierca	
Lexington Community Hosp. Lincoln, 81,984—Lancaster	Gen	Corp	20	9	6	153	453	Plainview General Hospital. Gen NPAssn 8 2 1 33 213 Sutherland, 862—Lincoln Sutherland Hospital Gen NPAssn 8 3 5 29 150	i
Bryan Memorial Hospital Action Green Gables, Dr. Benj. F. Bai	Gen	Church	100	65	20	317	1,936	Sutherland Hospital Gen NPAssn 8 3 5 29 150 Sutton, 1,463—Clay	ı
Sanatorium	Gen	Corp	120	92	6	14		Sutton Hospital Gen Indiv 12 4 9 92 123	
Lincoln General Hospital*	Gen Ment	City State	204 1,440	113 1,364	26	412	3,526 299	Tecumseh, 2,104—Johnson Gen Indiv 12 3 3 34 156	
Nebraska Orthopedic Hos-	Onth				••	•••		Con India 10 9 9 15 195	
pital+▲ St. Elizabeth Hospital*▲	Gen	State Church	110 175	91 110	25	564	835 3,965		
Veterans Admin. Facility Loup City, 1,675—Sherman		Vet	251	226	••	•••	2,202	Westpoint, 2,510—Cuming	
Loup City Hospital Lynch, 487—Boyd	Gen	Indiv	11	7	4	63	338	St. Joseph Home and Hosp. InstGen Church 18 10 6 71 490	
Sacred Heart Hospital	Gen	Church	18	7	4	42	285	NEVADA	
McCook, 6,212—Redwillow St. Catherine of Sienna Hos-	~	۸						io s	
pital▲ Minden, 1,848—Kearney		Church	60	28	12	165	1,210	of ined ined ined ined ined ined ined ined	
Seeley Hospital	Gen	Indiv	12	4	10	61	202	Service Control of Solution of Control of Co	
St. Mary's Hospital Norfolk, 10,490—Madison	Gen	Church	58	38	12	251	1,363	Callente, 1,400-Lincoln	
Lutheran Hospital	Gen	Church	60		15	194	1,459	East Ely, 600-White Pine	
Norfolk State Hospital+4 Our Lady of Lourdes Hosp.	Gen	Church	1,152 32	1,115 22	8	123	199 669	Steptoe Valley Hospital Gen NPAssn 40 19 7 112 234 Elko, 4,094—Elko	
Verges Sanitarium North Platte, 12,429—Lincoln	Gen	Indiv	30	14	5	27	215	Elko General Hospital 4 Gen County 50 27 10 129 811 Ely, 4,140—White Pine	
St. Mary Hospital Oakland, 1,380—Burt	Gen	Church	66	47	10	167	1,653	White Pine General Hospital Gen County 50 35 15 80 843	
Oakland Community Hosp	Gen	Indiv	12	5	3	56	270	Fallon, 1,911—Churchill Handley Hospital Gen Part 24 17 6 44 726	
Odell General Hospital	Gen	Indiv	10	7	5	50	250	Las Vegas, 8,422—Clark Las Vegas HospitalGen Corp 36 24 11 136 1,257 Reno, 21,317—Washoe	
Omaha, 223,844—Douglas Bishop Clarkson Memorial	_	<u>.</u>						Nevada State Hospital for	
Hospital*+40 Creighton Memorial St. Joseph	Gen i's	Church	138	107			3,823	St. Morris Hospitala Gen Church 75 58 15 300 1,970	
Hospital*+▲◆	Gen	Church County	405 320	264 241	60 15	1,154 75	9,358 2,807	Veterans Admin. Facility Gen Vet 26 17 239	
	ГB	County	80		••	•••	78	Hospital	
Douglas County Psychiatric Hospital	Unit o	f Douglas	Cour	ty Ho	spit	al		Walker River Indian Hosp Gen IA 34 24 3 42 350	
Immanuel Deaconess Insti- tute*▲◇	Gen	Church	123	99		663	3,602	Stewart, 412—Ormsby Carson Agency Hospital Gen IA 32 31 5 31 507	
Lutheran Hospital Nebraska Methodist Hospital		Church	110	60			2,100	Tonopah 2,115—Nye Tonopah Mines Hospital Gen NPAssn 20 10 3 34 310	
and Deaconess Home**(Nicholas Senn Hospital	Gen Gen	Church NPAssn	175 90	111 64		488 206	4,858 2,190	Winnemucca, 2,465—Humboldt Humboldt County General	
St. Catherine's Hospital**. (University of Nebraska Hos-		Church	165	89	45	643	3,853	Humbolit County General Gen County 50 26 9 102 950	
pital*+**	Gen	State	210	176	20	470	3,264	Related Institutions	
Ord, 2,240—Valley Ord Hospital	Gen	Indiv	15	9	4	23	246	Hawthorne, 750—Mineral Mineral County Hospital Gen County 16 10 2 61 203	
Oxford, 1,141—Furnas Oxford General Hospital	Gen	Corp	15	8	5	60	312	Owyhee, 25—Elko Western Shoshone Hospital Gen 1A 23 19 4 27 549	
Oxford General Hospital(Pawnce City, 1,647—Pawnee Pawnee Hospital and Matern-								Stewart, 412—Ormsby Carson Indian School Hosp. Inst IA 34 9 205	
ity Annex Pender, 1,135—Thurston	en	Indiv	26	13	4	102	628	Verington, 964—Lyon Lyon County Hospital Gen County 10 6 2 9	
Logan Valley Hospital (Scottsbluff, 12,057—Scotts Bluff	Gen	Indiv	12	5	5	52	276		
Scottsbluff, 12,057—Scotts Bluff Fairacres Hospital	en	Indiv	30	25	8	229	1,233	NEW HAMPSHIRE	
West Nebraska Methodist Episcopal Hospitalo		Church	50	35	12	260	1,631	· · · · · · · · · · · · · · · · · · ·	
Seward, 2,826—Seward Seward Hospital		Indiv	15	6	в	52	236	Hospitals and Landscape of Service Control Ownership or Control Contro	
Sidney, 3,388—Cheyenne		Indiv	18	7	5	51	362	En 00 1	
Roche Hospital		Part	18	8	5	99	441	Berlin, 19,084—Coos St. Louis Hospital ⁴⁰ Gen Church 92 72 16 271 2,073	
Stratton, 630—Hitchcock Stewart Hospital	en :	Indiv	11	3	3	36	159	Claremont, 12,144—Sullivan Claremont General Hosp. A. Gen NPAssn 59 41 11 224 1,119	
Stromsburg, 1,127—Polk Stromsburg Hospital		Indiv	8	3	2	39	159	700 63 16 240 2,073	
Stuart, 760—Holt Wilson Hospital		Indiv	20	10	3	57	364	Now Wampshire Memorial	
i fosp 6		Corp	25	7	δ	48	237	Hospital C	
General Hospital		Indiv	15	7	Б	65	429	pital+A0	
Wahoo, 2,648—Saunders Wahoo Community Hospital &		Indiv	20	11 1		85	619	Wentworth Hospital-, 1111 4 a	
WRITE COMPANY			Кеу	to syr	nbol	s and	abbres	viations is on page 1071	

NEW HAN	IPSH	IRE—C	onti	nued			i
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †
_	Gen	NPAssn	23	10	6	70	339
```	Gen	County	48	31	10	122	743
	Gen	NPAssn	65	40	19	259	1,324
	Gen	NPAssn	48	25	16	165	932
New Hampshire State Sana- torium	тв	State	140	140			57
Grasmere, 200—Hillsboro Hillsborough County Genera Hospitalo Hanover, 3,425—Grafton	ıl . Gen	County	118	100	14	230	2,022
Mary Hitchcock Memorial Hospital*+*	. Gen	NPAssn	178	144	18	317	5,281
Keene, 13,832—Cheshire Elliot Community Hosp. 40.		NPAssn	85	62	15	335	2,435
Laconia, 13,484—Belknap Laconia Hospital	Gen	NPAssn	80	79	25	377	2,469
Lancaster, 3,095—Coos Lancaster Hospital	Gen	NPAssn	20	13	4	82	422
Lebanon, 7,590—Grafton Alice Peck Day Memorial							
Hospital Littleton, 4,571—Grafton	. Gen	NPAssn	16	8	8	117	268
Manchester, 77.685—Hillshoro	. Gen	NPAssn	50	21	8	128	605
Balch Hospital	. Unit e Gen	of Elhot I NPAssn	122	al 75	32	564	2,357
Lucy Hastings Hospital Notre Dame de Lourdes Hos	Gen	NPAssn	25	5	6	15	122
pital Our Lady of Perpetual Hel	. Gen	Church	93	78	15	284	2,240
Maternity Hospital Sacred Heart Hospital Nashua, 32,927—Hillsboro	. Unit o	of Sacred Church	Heart 124	Hosp 106	ital 19	338	3,736
Nashua Memorial Hospital* St Joseph's Hospital*	<ul><li>Gen</li><li>Gen</li></ul>	NPAssn Church	84 92	63 62	16 18	$\frac{280}{334}$	1,879 2,090
New London, 1,039—Merrimack New London Hospital	: _	NPAssn	20	9	G	46	354
hewport, 5,304—Sullivan Carrie F. Wright Hospital		NPAssn	27	12	9	96	313
North Conway, 900—Carroll			37	26	10	120	854
Memorial Hospital	39—Meri TB	orp	100	79			90
Peterborough, 2,470—Hillsboro Peterborough Hospital Plymouth, 2,533—Grafton	) _	NPAssn	30	23	10	137	702
Sceva Speare Memorial Hos	. Gen	NPAssn	33	23	7	126	703
U. S. Naval Ho°pital*▲	am Gen Gen	NPAssn Navy	98 152	83 43	18	446	3,074 578
Rochester, 12,012—Strafford	Gen	NPAssn	28	27	8	302	1,417
Frishe Memorial Hospital West Stewartstown, 350—Coos Coos County Hospital	Gen	County	50	31	5	90	366
Whitefield, 1.834—Coos	Gen	NPAssn	56	10	8	30	220
Morrison Hospital Wolfeboro, 2,636—Carroll Huggins Hospital	Gen	NPAssn	36	27	6	96	919
Woodsville, 1,900—Grafton Cottage Hospital	Gen	NPAssn	28	16	8	115	563
Grafton County Hospital	InstG		32	34	4	18	347
Related Institutions Epping, 1,618—Rockingham							
Rockingham County Farm	. Inst	County	62	47			88
Eleter, 5,398—Rockingham Lamont Infirmary	Total	NPAssa		10			834
Laconia, 13,484—Belknap Laconia State School	MeDo		616	614			57
Manchester. 77,685—Hillsboro Manchester Isolation Hosp		City	67	10			137
and a second of the p	. 200	5117	-		-	-	
N	EW	JERSE	Y				
	of lee	ership ontrol		3 ÷	lets	er of	
Hospitals and Sanatoriums	Type o Service	EO	sp.	Average Census	Bassinets	Number Births	dmls ons †
Allentown, 766-Monmouth	£8	6	Bed	4,0			<.29
Dr. Farmer's Private Hos Allenwood, 150—Monmouth	p . Gen	Indiv	25	17	5	59	758
Allenwood Sanatorium an Monmouth County Hosp	ıtal			_			
* . m · · · · · · · · · ·	тв	County		98		• •	138
***	. Gen at	NPAssi	260	174	40	985	5,825
Municipal Hospital	Orth	NPAssi City	1 375 40	187 3			2,369 90
Bayonne, 79,198—Hudson Bayonne Hospital and Dis pensary**** Super Sanatorium	Gen Gen	NPAssi Indiv	1 220 16	163		743 42	
Swiney Sanatorlum .	GCB	*nais		ں مد بدہ		7	الانت مطاحة المس

NEW JERSEY—Continued											
	₩.	tro		e +	ets	r of					
Hospitals and Sanatoriums	o ot Alce	nership Control	S	Average Census	Bassinets	ths	mls ns †				
Beach Haven, 746—Ocean	Type Servic	OWI Or	Beds	Ave	Bas	Mai	Adj				
Seashore Branch of Bables' Hospital Bellemead, 51—Somerset	Unit of	Babies'	Hosp	, Phil	ađel	phia,	Pa.				
Belle Mead Sanatorium and	кам	Corp	65	45		•••	103				
tagious Diseases+40	Iso	County	510	177			3,852				
Bernardsville, 3,405—Somerset	TB	County	30	18	•	•	25				
Shannon Lodge Sanatorium Bound Brook, 7,616—Somerset Bound Brook Hospital	Conv Gen	Corp NPAssn	30 30	12 19	10	66	110 666				
Bridgeton, 15,992—Cumberland Bridgeton Hospital		NPAssn	89	63	16	330	1,882				
Ivy Hall Sanitarium Browns Mills, 500—Burlington	Conv	Indiv	25	20	••	•	40				
Deborah Sanatorium Camden, 117,536—Camden		NPAssn	75	67	•••		83				
	Gen Gen	NPAsen NPAsen	32 315	$\frac{24}{248}$	15 60	350 1,573	970 6,865				
Marion Childs Hospital for Children	Unit o	f West	Jersey	Hom	eops	thic 1	Но∘р.				
Municipal Hospital for Con tagious Diseases	Iso	City	100	25		•••	493				
West Jersey Homeopathic Hospital*+40	Gen	NPAssn	245	168	73	1,488	5,773				
Cedar Grove, 2,000—Essex Essex County Hospital*. Dover, 10,491—Morris	Ment	County	2,567	2,833	••	•••	607				
Dover General Hospital▲ Dumont, 7,556—Bergen	Gen	NPAssn	83	63	21	476	2,360				
Dumont Private Hospital . East Orange, 68,945—Essex East Orange General Hos-	Gen	Indiv	11	4	5	29	154				
	Gen	NPAssn	120	87	30	564	3,172				
Elizabeth General Hospital a	nd	Church	168	141	••	•••	2,634				
Dispensary **	Gen Gen	NPAsen Church	193 222	165 162	33 44	1,220 1,162	5,301 4,706				
Englewood Hospital**  Fort Div, 1,000—Burlington	Gen	NPAssn	196	164	42	951	4,803				
Station Hospital Fort Hancock, —Monmouth	Gen	Army	450	61	••	1	1,865				
Fort Monmouth, Monmouth	Gen	Army	175	13	2	•••	523				
Station Hospital Franklin, 4,009—Susses Franklin Hospital	Gen Gen	Army NPAcon	54 27	18 17	4 7	21 115	830 526				
Glen Gardner, 536—Hunterdon New Jersey Sanatorium for	тв	State	494	451	·		347				
Grenloch, 800—Camden Camden County General Ho		County	160	160	••	•••					
Camden County Hospital for Mental Diseases	Ment	County	750	780	••	•••	1,479 204				
Camden County Tuberculosis	тв	County	245	198		• • • • • • • • • • • • • • • • • • • •	205				
Greystone Park,—Morris New Jersey State Hosp +40 Hackensack, 26,279—Bergen	Ment	State	5,490	5,414			1,392				
Hackensack, 20,270—Bergen Hackensack Hospital** Hasbrouck Heights, 6,716—Berg	Gen	NPAssn	250	258	42	1,470	8,874				
Hasbrouck Heights Hospital Hoboken, 50,115—Hudson	Orth	NP.199n	31	24	••		613				
St Mary Hospital**  Irvington, 55 328—Essex	$\mathbf{T}\mathbf{B}$	Church Church	315 60	234 42	25	634	5,057 95				
Jersey City, 301,173—Hudson	Gen	City	79	61	17	325	2,674				
Christ Hospital*AO	(ien	Church NPAssn		182 32	21 15	1,038 218	5,135 1,271				
Fairmount Hospital Greenville Hospital Hudson County Tuberculosis Hospital+A	TB	NPAssn County	500	59 485	16	196	780 613				
Jersey City Hospital*+40 Jersey City Hospital for Communicable Diseases4	Gen Unit c	City of Jersey	900 City	882 Hospi	al.	•••	17,910				
Margaret Hague Maternity Hospital+40	Mat	County	345	231	340	5,798	6,817				
Psychopathic Hospital St. Francis' Hospital***.	Cnit o Gen TB	f Jersey Church Church	204 24	110spl 135 22	al 14	211	3,651				
Kearny (Arlington PO), 39,467- West Hudson Hospital	-Hudse	on NPAssn	63	51	 17	315	37 2,167				
Lakewood 8,000-Ocean Paul Kimball Hospital▲	Gen	NPAssn		38	11	145	1,244				
Long Branch, 17,408—Monmout Dr E C Hazard Hospital	h Gen	NPAssn	95	75	30	251	3,912				
Monmouth Memorial Hos pital** Lyons, —Somerset	Gen	NPAssn	202	157	42	854	5,696				
Veterans Admin Facility		Vet	1,750	1,518	••		673				
New Jersey State Hospital+A Metuchen, 6,557-Middlesex	Ment	State	2,783	2,496	••	• •	806				
Midiand Park, 4,525—Bergen	bCancer N&M	County NP4een	221 185	219 185	••	• •	259 194				
	Gen	NPAssn		36	5	212	1,061				

NEW JE	RSEY—Co	ntinu	eđ				NEW JERSEY—Continued
	f hip trol		n +-	53	oţ		£ 55
Hospitals and Sanatoriums	Type of Service Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admis- sions †	
Montclair, 39,807—Essex Montclair Community Hos-			ΨÖ	Ä	Z	4.28	Secaucus, 9,754—Hudson Hudson County Contactors
pital  Mountainside Hospital  St. Vincent's Hospital	ien NDAger	312	190	20 60 12	803	1,386 5,931 1,327	Hudson County Hospital Gen County 176 70 1,257 Hudson County Hospital Gen County 250 231 303
Children's Heart Unit of Victoria Foundation		1 24	20	•••	•••	52	Skillman, 23—Somerset New Jersey State Village for
All Souls Hospital**	en Church	115		30	525		Somers Point 1 992—Atlantia Epil State 1,550 1,526 &
Aurora Institute		90	33	••	•••	433	Somerville, 8.720—Somerset NPAssn 65 26 9 114 833
pital*A			107		329	-	Somerset Hospital Ao
torium	B County	76	64	••	•••	81	Summit, 16,165—Union Gen NPAssn 42 32 14 224 1,403
pital*+4		127	96	18	631	2,631	Overlook Hospital • Gen NPAssn 122 103 26 578 2021
Newark, 429,760—Essex	en NPAssn	155	142	35	831	4,679	Sussex, 1,478—Sussex Alexander Linn Hospital Gen NPAssn 22 15 5 150 496 Teaneck, 3,260—Bergen
American Legion Memorial Hospital	ien NPAssn	35	18	13	282	947	Holy Name Hospital*** Gen Church 182 151 43 1,305 4,733
morial≜⊙	en NPAssn	88	36 53	35	767	$\frac{1,207}{2,826}$	pitals TB City 100 C4 194
Hospital and Home for Crip-	en NPAssn		22	4	8		Glenwood Sanitarium
pled Children+A	orth NPAssn	110	75	• •	•••	322	New Jersey State Hosp.+A., Ment State 3,000 2,942 927 New Jersey State Prison Hos.
dren**		217	167	35		5,385	Orthopaedic Hospital and Dis-
pital*+▲○	en NPAssn en City B City	381 670 30	355 558 26	40	1,645	11,429 14,668 284	pensary
Newark Eye and Ear Infirmary+4			27	••		2,068	William McKinley Memorial  Hospital*▲○
Newark Memorial Hosp.**  Presbyterian Hospital*  St. James Hospital*	en NPAssn	135 222	75 190		508 1,432	2,733 9,154	Union City, 56,172—Hudson Union City General Hospital Gen NPAssn 30 15 10 65 650 Verona, 8,957—Essex
St. Michael's Hospital***( New Brunswick, 33,180—Middlesex	en Church	129 318	80 204	$\frac{21}{32}$	545 891	2,698 5,983	Essex Mountain Sanator- ium+A County 446 411 478
Middlesex General Hosp. ♣ ○ . C St. Peter's General Hosp. ★ ▲ ○ C	en NPAssn	105 185		$\frac{25}{42}$	548 813	2,254 $4,425$	Vineland, 7,914—Cumberland Newcomb Hospital  Newcomb Hospital  Weehawken (Union City P.O.), 14,363—Hudson  North Hudson Hospital  North Hudson
New Lisbon, 213—Burlington Fairview Sanatorium	B County	114	103			68	Westfield, 18,458—Union
Newton, 5,533—Sussex Newton Memorial Hospital* ( Northfield, 2,848—Atlantic	en NPAssn	42	42	14	238	1,426	Children's Country Home A. Orth NPAssn 75 54 183 Woodbury, 8,306—Gloucester Underwood Hospital A Gen NPAssn 50 42 20 332 1,730
Atlantic County Hospital for Mental Diseases	lent County	475	362	••	•••	174	Related Institutions Atlantic City, 64,094—Atlantic
Tuberculous Diseases (Pine Rest Sanitarium)	B County	102	50	••	•••	78	Dr. Leonard's Private Sanltarium Drug Indiv 25 12 Bridgeton, 15,092—Cumberland
New Jersey Orthopaedic Hospital and Dispensary A Corange Memorial Hosp.**	rth NPAssn en NPAssn		27 246	;; 75	1,379	471 7,882	Cumberland County Hospital for Insane Ment County 300 239 74 Browns Mills, 500—Burlington
St. Mary's Hospital** 6 Passaic, 61,394—Passaic	en Church	120	77	30	609	2,720	Browns Mills Nursing Cot- tage
Beth Israel Hospital	en NPAssn		154	20 50	375 1,082 1,089	1,960 4,339 4,892	Manor Nursing Cottage TB Indiv 40 33 23 Sycamore Hall Sanatorium TB Indiv 34 22 30 Caldwell, 4,932—Essex
St. Mary's Hospital*40	en Church	102			•	-	Theresa Grotta Home for Con- valescents CardConv NPAssn 40 21 321
■ <b>▲ .</b> (			230		1 409	3,267 8,812 8,478	Farmingdale, 609—Monmouth Tuberculosis Preventorium for Children TB NPAssn 256 263 569
St. Joseph Hospital***  Valley View Sanatorium* Terth Amboy, 41,242—Middlesex		234	227			702	Inst State 35 12 779
Perth Amboy General Hospital**  Phillipsburg, 18,314—Warren	en NPAssn			30		4,785	Mat Church 8 72
Warren Hospital		75 85		14 12		2,303 1,608	
Royal Pines Hospital 6 Plainfield, 37,469—Union Muhlenberg Hospital**6		261				6,315	Orth NPAssn 100 53 67  Maplewood, —Essex Newark City Almshouse Inst City 100 95 352
Point Pleasant, 2,082—Ocean Point Pleasant Hospital*	en NPAssn	48	23	10	115	713	Menio Park, 400—Middlesex New Jersey Home for Dis-
Preakness (Paterson P.O.), —Pas Hope Dell Hospital In Princeton, 7,719—Mercer	saic stGen County	417	119	••	•••	165	abled Soldiers Inst State 100 05
Isabella McCosh Infirmary of Princeton University I	nst NPAssn	54	23	••	211	1,322 1,439	Newark Convalescent Hosp. Conv City 155 139 New Brunswick, 33,180—Middlesex
Princeton Hospital 6 Rahway, 17,498—Union New Jersey Reformatory Hos-		70	40	11	211		Mary Kingsland Macy Wil- lets Infirmary
pital I Rahway Hospital G	nst State	18 80	<b>4</b> <b>6</b> 9	20	497	213 2,797	Rutgers Infirmary Inst NPAssn 12 5 Newfoundland, 505—Morris TB Corp 50 20 31
Red Bank, 10,974—Monmouth Riverview Hospital G Ridgewood, 14,948—Bergen		28	20	12	168	742	for the Insane Ment County 301 242 45
Hospital I	B County	354 146				257 391	State Colony for Feedle- minded Males MeDe State 800 773
Riverside, 7,200—Burlington	to County	41	30	_		1,113	Paterson, 139,636—Passaic Paterson City Hospital Chriso City 110 44
Salem, 8,618—Salem Salem County Memorial		40	50	8	411	2,019	Mountain View Rest
Т	en NPAssn  B County	428	345			315	ing School
						a abbre	viations is on page 1071

Number 13								
NEW JE	RSEY	Conti	inue	đ			1	NEW MEXICO—Continued
		Ownership or Control			Bassinets	Number of Births	Admis- sions t	Ownership or Control  Beds Average Consust + Bassinets Buthbs of Admissions + Stons +
Totowa (Little Falls P.O.), 5,130-	-Passai	c					1	Rehoboth Mission Hospital. Gen Church 35 25 10 107 714
North Jersey Training School 1 Trenton, 124,697—Mercer State Home for Girls		State ( State	630 70	619 49	3	 17	40 273	Roswell, 13,482—Chaves St. Mary's Hospital
Upper Montclair, —Essex Montclair Sanitarium	Conv I	Part	10	5			39	St. Vincent Sanatorium and Hospital A Gen'Th Church 59 53 12 175 1,375 U.S. Indian Hospital (Chas. F. L. 76 29 6 25 1049
Vineland, 7,914—Cumberland Maplehurst School			20				18	U. S. Indian Hospital (Chas. F. Lummis Hospital) Gen IA 76 39 6 35 1,049
New Jersey Memorial Home for Disabled Soldiers, Sallors		iluiv	20	•••	••	•••	}	Common   C
Marines and Their Wives	•	State	65	19			156 43	Sblprock, 125—San Juan Northern Navajo Hospital Gen IA 48 44 6 35 1,176
and Widows Training School at Vineland Vineland State School Westfield, 18,458—Union	MeDe E	State 1,	550 ,545	526 1,541	::		52	Swift Memorial HospitalGen NPAssn 40 17 12 161 1,142 Socorro, 3,712—Socorro
Brookside Nursing Home Woodbine, 2,111—Cape May	Conv (	Corp	28	26	••	•••	35	State Tuberculosis Sanatorium
Woodbine Colony for Feeble- minded Males	MeDc 8	State	730	694		•••	47	Tueumeari 6.194—Ougy
NEV	v mi	EXICO						Valmora, 125—Mora
2121						¥		Valmora Sanatorium TB NPAssn 75 38 126
	jc o	shl) otro		8 +	ets	er o	.s.+-	Related Institutions
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †	Eunice, 1,227—Lea Barzune HospitalGen Indiv 8 3 3 162 Lordsburg, 3,101—Hidalgo
	Ę, S	68	ğ	G A	ğ	žÄ	Sic	Lordsburg, 3,101—Hidalgo Lordsburg Hospital Gen Corp 20 5 3 19 232
Albuquerque, 35,449—Bernalillo Ahepa National Sanatorium	тв	NPAssn	46	39			23	Lordsburg Hospital Gen Corp 20 5 8 19 232 Los Lunas, 658—Valencia New Mexico Home and Train-
Albuquerque Indian Sana- torium⁴	TB	IA	100	88			136	ing School for Mental De-
Atchison, Topeka and Santa Fe Hospital	Indus	NPAssn	67	31			399	Springer 1314—Colfax
Children's Home and Hosp Methodist Sanatorium	Orth .	NPAssn Church	40 65	20 47			400 87	Taos, 965—Taos
St. Joseph Sanatorium and Hospital*		Church	110		20	484		Springer Hospital
Southwestern Presbyterian	TB	Church	50	24	••	•••	38	
Sanatorium⁴	Gen	Church Church	88 59		iż	425	121 2,166	NEW YORK
U. S. Indian School Hosp. A Veterans Admin. Facility A	Gen Gen	IA Vet	60 154	52 120	8	99	1,839 1,165	trol trol
Artesia, 4,071—Eddy	TB	Vet	105	71	••	•••	197	Type of Service Service Ownerskip or Control
Artesia Memorial Hospital Black Rock (Zuni P.O.), —McKi	Gen nlev	Indiv	25	5	6	78	418	
Zuni Indian Hospital Carlsbad, 7,116—Eddy	Gen	IA	43	22	8	14	490	Albany, 130,577—Albany Albany Hospital*** Albany Hospital** Albany Hospital* A
Physicians and Surgeons	Gen	Indiv	16	12	4	59	499	TB NPAssn 123 119 213 Anthony N. Brady Maternity
(	Gen	Church	40		12		1,374	Home+A0
St. Joseph Hospital Clovis, 10,065—Curry		Church	25	7	5	58	349	1 St. Peter's Hospital*▲○ Gen Church 157 130 3.759
Atchison, Topeka and Santa Fe Hospital	. Indus	NPAssn City	32 42	15 30	ii	400	431 1,906	Albion, 4,660—Orleans Arnold Gregory Memorial Hospital
Crownpoint, 90—McKinley Enstern Navajo Hospital. Dawson, 2,000—Colfax	Gen	IA	\$8		11		1,387	Hospital
Dawson, 2,000—Colfax Phelps Dodge Corporation	· GCI	1.1	20		**	30	1,001	Louden-Knickerbocker Hall. N&M Corp 175 154 205 Amsterdam, 53,329—Montgomery
Hospital	. Gen	NPAssn	30	4		25	254	Amsterdam City Hospital ^o Gen NPAssn 88 57 15 222 1,761 Montgomery Sanatorium TB County 60 42 87
Deming Ladies' Hospital Dulce, 44—Rio Arriba	. Gen	NPAssn	25	•••	5	30	410	St. Mary's Hospitalo Gen Church 100 78 22 403 2,137 Auburn, 35,755—Cayuga Auburn, 25,755—Cayuga
toelum	GenTb		_88	40	4	23	389	Home for Convalescent and
J En	Unit o	f Jicarilla	Hos	pital a	ind !	Sanat	orium	Crippled Children Unit of Auburn City Hospital Mercy Hospital Gen Church 80 38 14 173 1,429
Embudo Presbyterian Hosp Farmington, 2,161—San Juan		Church	24	12	12	123	667	Ballston Spa, 4,443—Saratoga   Benedict Memorial Hospital Gen NPAssn 16 9 6 99 991
Farmington Hospital San Juan Episcopal Indian		Indiv	6	3	3	28	153	Batavia, 17,267—Genesee Batavia Hospital
Mission Hospital San Juan Hospital	. Gen . Gen	Church NPAssn	16 25	9		15 38	296 312	St. Jerome Hospital Gen Church 73 55 18 355 2,027 Veterans Admin. Facility A. Gen Vet 307 254 2115
Fort Bayard, 1,000—Grant Veterans Admin. Facility.		Vet	150	121			615	Bath, 4,696—Steuben  Bath Memorial Hospital Gen NPAssn 60 46 8 200 1 670
Fort Stanton, 490—Lincoln U. S. Marine Hospital*	TB . TB	Vet USPHS	155 237	95 177			189 253	Veterans Admin. Facility A. Gen Vet 428 342 2,378 Bny Shore, 10,000—Suffolk Dr. King's Hospital
Fort Wingate, 14—McKinley Charles H. Burke Hospital.	. Gen	IA	35	24		41		Southside Hospital Gen NPAssn 90 95 24 763 3,663 Beacon, 12,572—Dutchess
Fort Wingate, 14—McKinley Charles H. Burke Hospital. Gallup, 7,041—McKinley St. Mary's Hospital. Hobbs, 10,019—Len	. Gen	Church	90		12	187		
Hobbs General Hospital Hot Springs 2 940—Stores	. Gen	Indiv	23	10	4	151	955	Mattenwan State Hospital A. Ment State 1,570 1,558 149  Bedford Hills, 2,000—Westchester  Monteflore Hospital Country
Hobbs General Hospital Hot Springs, 2,949—Sierra Carrie Tingley Hospital for Crippled Children Las Vegas, 5,941—San Miguel Las Vegas Hospital (Carper	. Orth	State	125	70			265	
Las Vegas, 5,941—San Miguel Las Vegas Hospital (Carper	n- Co <del>r</del>							Sanatomin   APA   Sinatomin
New Mexico State Hospital.	. Ment	NPAssn State	910 68	18 915		87	240	Binghamton City Hosp.*AO Gen City 510 337 40 1,065 9,506 Binghamton State Hosp.*AO Ment State 2,074 2,689 627
St. Anthony's Hospital Lovington, 1,916—Lea Lovington General Hospita		Indiv	68 10	34		160 64		Our Lady of Lourdes Memorial Hospital Gen Church 83 60 22 381 1,513 Brentwood, 493—Suffolk
Mescalero, 300—Otero Mescalero Anache Indian Ho	5.	mar.	10	3	Ð	04	118	Pilgrim State Hospital+4 Ment State 9,530 9,115 1,943
pital Raton, 7,607—Colfax New Mexico Miners' Hosp.4	Gen	IA	35	13	4	32		Ross Sanitarium
New Mexico Miners' Hosp.	. Gen	State	88	13	10	82	722	tarium

NEW :	YORI	K—Cor	ntinue	ed			
		<u>6</u> 5.			_	of	
	<b>5</b> 9	Ownership or Control		g +	Bassinets	r.	
Hospitals and Sanatoriums	Type of Service	S	8	Average Census †	ssir	Number Births	nis.
_	Ty	0,10	Beds	Sen	328	Z Z	Admis
Brockport, 3,590—Monroe		_		70	~	AH	8
Brockport Central Hospital. Bronxville, 6,888—Westchester		NPAssi	n 19	14	6	70	480
Lagranda Hospitala	Gen	NPAssi	1 86	71	20	333	2,096
Brooklyn, 2,698,285—Kings Adelphi Hospital	0			,-			-
Bay Ridge Hospital	Gen Gen	NPAssi Corp	n 155 83	51	30	Reorga	
Densonnurst Maternity Hos-	Cicii	Согр	55	31	30	685	2,364
Pethany Deaconess Hospital	Mat	Corp	24 82	16	24	545	586
Bethany Desconess Hospital Beth-El Hospital**	Gen	Church NPAssn		55 179	20 65	449 2,247	1,769 6,414
meta moses nospital**	Gen	NPAssn	ı 195	139	30	816	4,811
Brooklyn Cancer Institute+A Brooklyn Doctors Hospital	Gen	Indiv	87 120	79 74	40	642	\$30 2,014
Brooklyn Eye and Ear Hos-				12	40	032	2,014
pital+A Brooklyn Hospital*+A0	ENT	NPAssn NPAssn		74	::		7,213
Drooklyn State Hognitelac	Mont	State	3,461	246 3,400	44	1,003	7,443 2,869
Brooklyn Thoracic Hosp.	TB	NPAssn	125	125	• •		128
Brooklyn Thoracic Hosp. A Brooklyn Womens Hospital Bushwick Hospital*Ao	Gen	NPAssn NPAssn		37 82	40 22	1,153 591	1,539 2,519
Caledonian Hospital	Gen	NPAssn		77	30	567	2,920
Carson C. Peck Memorial Hospital	Con	X'D t con	. 00	01	20	1.004	
Coney Island Hospital*+*	Gen Gen	NPAssu City	1 98 357	61 257	33 30	1,004 815	2,513 7,267
Crown Heights Hospital	Gen	Corp	144	118	28	677	7,267 3,272
Cumberland Hospitul*+* Evangelical Deaconess Hosp.	Gen	City Church	361 105	252 59	39 20	1,055 650	6,900 1,726
Fort Hamilton Station Hos-						500	
pital Greenpoint Hospital*+▲	Gen	Army City	60 264	$\frac{26}{225}$	36	1 100	878
Harbor Hospital	Gen	NPAssn		42	24	1,189 137	6,029 1,563
Hospital of the Holy					-		
Family▲	Gen	Church	134	103	••	•••	2,261
Cripple	Orth	Church	45	32			214
Cripple  Israel-Zion Hospital*+  Jewish Hospital*+  A	Gen	NPAssn NPAssn		326	142	4,377 1	10,933
Jewish Sanitarium and Hos-	Gen	MEASSIL	547	411	114	3,278 1	10,201
pital for Chronic Dis-	Q1	3770.1	505	403			202
eases+▲ Kings County Hospital*+▲○	Gen	NPAssn City	525 2,080	483 2,708 1	20	3,20715	236
	TB	City	200	200	••	≀	
Kingston Avenue Hosp.+49	Iso TB	City	438 72	150 70	••	• • •	3,856
Kingsway Hospital		City Indiv	22	10	5	168	515
Long Island College Hos-		NTD 1		000			(
pital***  Lutheran Hospital*  Nadison Park Hospital	Gen	NPAssn Church	419 88	329 38	47 : 25	1,513 503	8,582 2,367
		Corp	163	92	37	1,244	8,332
Methodist Hospital*+Ao	Gen Gon	Church Corp	307 55		86 : 21	1,S10 471	$7,741 \mid 1,612 \mid$
Midwood Hospital Norwegian Lutheran Deacon-	Och	COLD	LIO	40		111	1,012
esses' Home and Hos-		Chumah	100	150	90	7:0	4,505
pital*+▲♦ Prospect Heights Hospital▲♦	Gen Gen	Church NPAssn	162 134		38 41		4,297
Riverdale Hospital	Gen	Corp	40		18	342	567
St. Catherine's Hospital** St. Charles Hospital Ortho-	Gen	Church	285	206	6S I	1,423 (	6,136
nedic Clinic	Orth	Church	55	51		,	197
St. John's Hospital*+40	Gen	Church Church	204 249		30 59 1		4,776 5,347
St. Peter's Hospital**		Church	197		27	474	3,600
Samaritan Hospital	Gen	Church	60	46	15 dat	493 I n supp	1,613
Shore Road Hospital	Gen	Corp NPAssn	50 76	79	16		2,260
U. S. Naval Hospital** Unity Hospital* Victory Memorial Hospital.	Gen	Navy	50S	471	12	112 4	1.487
Victory Memorial Hospital	Gen Gen	NPAssn NPAssn	209 60		39 1 24	1,011 5 566 1	5,330 1,804
Wade Hospital	Gen	Indiv	20	9	6	40	223
Williamsburgh Maternity	Mot	Indiv	69	37	52 1	,277 1	,448
Hospital	Gen	NPAssn	169		30	770 4	,227
Buffalo, 575,901—Eric		NPAssn	140	79 9	25	275 2	,215
Buffalo Columbus Hospital ( Buffalo Eye and Ear Infirmary	•			_			
and Wettlaufer Clinic Buffalo Genera! Hosp.*+40.	ENT	NPAssn NPAssn	14 446	5 410	9	765 10	552
Buffalo General Hosp. **** Buffalo Hospital of the Sisters	atil	NPAssn	446				1
	Gen	Church	208	162 2	4	740 4	,934 577
Buffalo State Hospital	uent Gen	otate : NPAssa	65	48 1	5		,162
Buffalo State Hospital+40 Central Park Hospital(Children's Hospital+40	atChil	NPAssn	949	175 6		,501 5,	,331
Crippled Children's Guild Upeaconess Hospital***  Edward J. Meyer Memorial  Edward J. Meyer Memorial	unit Of Jen	Onnarei NPAssn	190	162 4	9 1,	,103 5,	,713
Edward J. Meyer Memorial							1
Hospital (Bultalo Cit)		City	819	570 3	S		,456
Hospital)*+▲◊	ויות ו	City	312	227 .			339
Emergency Hospital of the Sisters of Charity L	2on	Church	169	140 .			471
Lafavette General Hospital.	en :	NPAssn	66	40 1		254 1,	482
Mercy Hospitalia	Tom.	Church	161 261	139 3 232 6	, 1,		826 748
Millard Fillmore Hosp. *+** . C	en &M	NPAssn Church	200	165 .		•••	95
St. Mary's Infant Asylum and				42 4		083 1,	159
Maternity Hospital	lat (	Church	45		,		- 1 -
of Malignant Diseases S	kCa	State	103	90 .			265 819
Millard Fillmore Hosp.*****  Providence Retreat9 N  St. Mary's Infant Asylum and Maternity Hospital* N  State Institute for the Study of Malignant Diseases* S U. S. Marine Hospital* (Callicoon, 850–Sullivan  Callicoon, 650–Sullivan (Callicoon, 650–Sullivan)	en	USPHS	75	63			- [ (
Callicoon Hospital	en l	Indiv	12	7 :	3	86	282
O-1-13-0 1570 Wechington		NPAssn	100	79 15	1	1,09 1,1	132
Mary McClellan Hospital . G						s and	abbrev
			Key	ra sy	.,01		

	NEW YORK—Continued	2
	- Continued	
STORE 1	Control  Ownership  or Control  Average Consus †  Basshoes  Number of  Births  Admis- Andmis- Andmis- Andmis- Andmis-	
0	Priches II-II	
G	Brigham Hall Hospital N&M Corp 80 54 103 Frederick Ferris Thompson Hospital4 Gen Corp. 100	j
ď	Veterans Admin. Facility. Ment Vet 1,174 1,129 157	
1	Canastota Memorial Hosp., Gen City 21 18 6 110	
6 9	Newton Memorial Hospital. TB County 180 165 115 Castle Point, 23—Dutchess Veterans Addin. Facility 1. TB Vet 479 442 679 Catchill 5400 Crack	,
1 1 0	veterans Admin. Facility. TB Vet 479 442 679 Catskil, 5,429—Greene Memorial Hospital of Greene	,
£	Centr Gen County 70 48 15 230 1,587	
3	Cent - Ment State 8,118 7,398 1,492	
3	Falkars in the Raimapos N&M Corp 40 27 10 Chenango Bridge, 400—Broome Broome County Tuberculosis	
)	HospitalTB County 97 71 61 Clifton Springs, 1,413—Ontario Clifton Springs Sanitarium	
3	and Clinic+4	
	Cold Spring, 1,897—Putnam Julia L. Butterfield Memorial	
	Hospital	
ļ	pital*+4	
	pital	
1	Corinth Hospital	
	Corning Hospital —	
	Cortnand Hospital — Gen NPAssn 66 49 15 268 1,630 Cortland, 15,831—Cortland Control Hospital Gen NPAssn 134 76 21 465 2,740	
	VerNooy Sanitarium Gen Indiv 13 11 6 162 421 Cuba, 1,699—Allegany	
	Cuba Memorial Hospital Gen NPAssn 19 8 7 67 335	
	Dannemora, 4,830—Clinton Clinton Prison, General and Tuberculosis Hospital Inst State 159 119 1,209 Dannemora State Hospital Ment State 1,297 1,162 166	
1	Dansville, 4,976—Livingston Dansville General Hospital, . Gen NPAssn 36 20 8 162 765 Delhi, 1,811—Detaware	
	Delaware County Tuberculosis Sanatorium TB County 32 15	
	Delhi Hospital Gen NPAssn 14 6 6 62 518 Dobbs Ferry, 5,883—Westchester	
	Dunkirk, 17,713—Chautauqua	
	Brooks Memorial Hospital. Gen NPAssn 50 48 11 351 1,611 Elizabethtown, 640—Essex Community Hospital Gen NPAssn 16 6 6 48 230	
	Ellenville, 4,000—Ulster Veterans Memorial Hospital Gen NPAssn 18 10 8 129 577	
	Elmira, 45,106—Chemung Arnot-Ogden Memorial Hos-	
	Chemung County Sanatorium TB County 43 37 37 St. Joseph's Hospital* Church 220 147 27 571 4,669	
	Endicott, 17,702—Broome Bradford Lord Memorial Hospital Pital Pita	
	Ideal Hospitales	
	Ansand County Banatonania IB County 310	
	Country Branch	
	Genesee Country Memorial Hospital Hospital Sishers Island, 750—Suffolk Gen Army 62 41 746	
ı	Station Hospital	
	Persons Hospital Gen Corp 63 60 12 411 2,220	
	ort Niagara (Youngstown P.O.), —Niagara Station Hospital	
	ort Slocum, Westchester Station Hospital Gen Army 135 61 2,011	
	ort Totten,—Queens Station Hospital Gen Army 75 31 842 Station Hospital	
	Station Hospital Gen Almy	
	Hospital	
	abriels, 300—Franklin Sanatorium Gabriels TB Church 116 45 51 Sanatorium Gabriels TB Church 116 45 51 Sanatorium Gabriels TB Church 116 45 51	
	eneva General Hospitals Gen NPAssa 76 61 20 310 2,22	

NEW YORI	ζ—Conti	inue	đ			1	NEW YORK—Continued	
	Ownership or Control			ts	t of		Hospitals and state of Service Service Ownership or Control Beds Average.  Bassinets Bassinets Average.  Admissions of Admissions of Service of	
Hospitals and Sanatoriums	Conf	w	Average Census †	Bassinets	Number Births	nis.	Hospitals and Service  Ownership or Control  Ownership or Control  Mumber of Bassinets  Bassinets  Bassinets  Births  Admis-	
Table Series	0 w 0 r	Beds	Ave	Bus	Mun	Admi		
Glen Cove, 12,415—Nassau North Country Community				•			River Crest Sanitarium N&M Corp 120 95 261 St. John's Long Island City	
Hospital Gen Glens Falls, 18,836—Warren	NPAssn	100		20	569	2,924	Hospital*40	;
Glens Falls Hospital Gen Westmount Sanatorium TbIso	NPAssn County	$\frac{120}{52}$	120 49	30	659	3,822 25	Lewis County General Hosp. Gen StateCo 43 32 18 211 1,312 Lyons, 3,863—Wayne	2
Gloversville, 23,329—Fulton Nathan Littauer Hospital A Gen	NPAssn	129	105	30	479	3,677	Edward J. Barber Hospital. Gen Indiv 25 13 3 57 390	
Goshen, 3,073—Orange Goshen Hospital Gen	NPAssn	40	25	12	200	993	Malone, 8,743—Franklin	
Interpines	Indiv	65	37	••	•••	44	Alice Hyde Memorial Hosp. A Gen NPAssn 74 51 12 211 1,835 Marcy, 800—Oneida	
Gouverneur, 4,478—St. Lawrence Stephen B. Van Duzee Hos-	NPAssn	19	19	10	165	589	Marcy State Hospital+40 Ment State 2,776 2,533 660 Margaretville, 812—Delaware	
pital▲ Gen Governors Island, —New York		212	158	9	94	2,805	Margaretville Hospital Gen NPAssn 14 5 5 39 240 Medina, 5,871—Orleans	
Station Hospital Gen Gowanda, 3,156—Cattaraugus	Army	27		10	191	676	Medina Memorial Hospital Gen NPAssn 38 23 10 202 801 Middle Grove, 100—Saratoga	ı
Townsend Hospital Gen Granville, 3,173—Washington	NPAssn					377	Saratoga County Tuberculosis	j
Emma Laing Stevens Hosp. Gen Greenport, 3,259—Suffolk	NPAssn	16	9	6	98		HospitalTB County 100 70S3 Middletown, 21,908—Orange Ellizabeth A. Horton Memorial	
Eastern Long Island Hosp. Gen Harrison, 8,500—Westchester	NPAssn	48		13	209	966	Hospital Gen NPAssn 97 81 22 169 2,528 Middletown Sanitarium and	3
St. Vincent's Retreat N&M Helmuth, 100—Erie	Church	200	192	••	•••	128	Hospital Gen Indiv 50 30 8 187 873 Middletown State Homeopathic	5
Gowanda State Homeopathic Hospital+0 Ment	State	2,752	2,435			577	Hospital+▲○	1
Hempstead, 20,856—Nassau Meadowbrook Hospital*+▲ Gen	County	250	228	25	641	5,988	Mineola, 10,064—Nassau   Nassau Hospital**	5
Herkimer, 9,617—Herkimer Herkimer Memorial Hospital Gen	NPAssn	31	35	9	174	1,149	Mineville, 600—Essex Mineville Hospital Gen NPAssn 14 12 1 2 250	0
Holtsville, 260—Suffolk Suffolk Sanatorium TB	County	162	160			103	Mitchel Field, —Nassau   Station Hospital Gen Army 50 30 6 22 1,330	0
Hornell, 15,649—Steuben Bethesda Hospital	NPAssn	44	28	10	164	1,116	Monticello, 3,737—Sullivan   Hamilton Avenue Hospital Gen Indiv 20 13 4 84 433	
St. James Mercy Hospital Gen	Church	93		16	285	2,855	Monticello Hospital Gen NPAssn 26 15 5 74 664 Montour Falls, 1,345—Schuyler	ŧ
Hudson, 11,517—Columbia Hudson City Hospital	NPAssn	101	80	17	320	3,271	Shepard Relief Hospital Gen NPAssn 28 24 6 126 768 Mt. Kisco, 5,941—Westchester	3
Huntington Hospital Gen	NPAssn	75	58	12	423	2,111	Northern Westchester Hosp. A Gen NPAssn 100 83 22 385 3,275 Mt. McGregor, 300—Saratoga	ā
Ilion, 8,927—Herkimer Ilion Hospital Gen	NPAssn	30	40	8	193	1,491	Metropolitan Life Insurance Company Sanatorium TB NPAssn 225 105 34	
Irvington, 3,272—Westchester Irvington House ChilCan	d NPAssn	108	105		•••	99	Gen NPAssn 125 81 194  Mt. Morris, 3,530—Livingston	
Ithaca, 19,730—Tompkins Cornell University Infirmary							Mount Morris Tuberculosis	
and Clinic Inst Hermann M. Biggs Memorial	NPAssn	80	36	••	•••	2,500	Mt. Vernon, 67,362—Westchester	
Hospital+A© TB Tompkins County Memorial	State	250	235	••	•••	247	Mt. Vernon Hospital** Gen NPAssn 223 140 41 925 5,027 Newark, 9,646—Wayne	
Hospital	NPAssn	128	SS	25	58 <b>6</b>	3,405	Newburgh, 31,883—Orange	1
Physcians Hospital Gen Jamaica, —Queens	Corp	135	110	40	1,393	4,152	Estelle and Walter C. Odell Me- morial Sanatorium for Tuber-	
Jamaica Hospital** Gen Mary Immaculate Hosp.*** Gen	NPAssn Church	185 256	137 209	44 69	1,178 1,655	5,262 6,644	culosis	3
Memorial Hospital Gen Queens General Hospital*+4. Gen	Indiv City	41 644	40	12	499 1,808	1,807	New Rochelle, 58,408—Westchester New Rochelle Hospital*+40. Gen NPAssn 258 212 45 845 6,563	3
Triboro Hospital TB Van Wyck Hospital Gen	City Indiv	557 55		17	Estab 129	. 1941 479	New Rochelle   Hospital*+A.   Gen NPAssn   258   212   45   845   6,560   New York City, 7,454,995—New York   Babies   Hospital*+A.   Chil NPAssn   162   117   3,233	
Jamestown, 42,638—Chautauqua Jamestown General Hospital Gen	City	119	s2	22	524	3,733	Beckman Hospital** Gen NPAssn 96 68 2,133 Bellevue Hospital** Gen City 2.775 2.583 99 1.521 69 083	3
Woman's Christian Associa-	NPAssn	117	103	29	629	3,667	Beth David Hospital*4 Gen NPAssn 160 106 27 587 3,596 Beth Israel Hospital*+40. Gen NPAssn 324 272 79 2,344 8,513	9
tion Hospitalo Gen Jefferson, 300—Schoharie	Indiv	8	4	2	5	146	Bronx Eye and Ear Infirm- ary ENT NPAssn 54 19 3,070	
Jefferson Hospital Gen Johnson City, 18,039—Broome	muiv	٥	*	4	J	140	Bronx Hospital*+4 Gen NPAssn 329 243 80 2,598 8,660 Bronx Maternity and Woman's	ó
Charles S. Wilson Memorial Hospital*+40	NPAssn	318	188	32	656	5,326	Hospital GynOb NPAssn 33 16 34 617 697	
Katonah, 1,800-Westchester "Four Winds"	Indiv	37	33			37 6	Columbus Hospital* Drug Corp 50 15 561 Columbus Hospital*	i
Hillbourne Farms Nerv Pinewood Sanitarium N&X	NPAssn I Indiv	15 63	4 46	::		260	Community Hospital Gen NPAssn 75 26 12 136 900	
Kings Park, 2,500—Suffolk Kings Park State Hosp. +40. Ment	State	6,525	4,013			1,465	Doctors Hospital Gen NPAssn 275 112 50 580 3,583	5
Kingston, 28,589—Ulster Benedictine Hospital (Our Lady	01				202	0.000	Fitch Sanitarium Gen Corp 71 50 48 716 2.156	3
of Victory Sanit.) A Gen Kingston Hospital + A Gen	Church NPAssn	90 118		16 15	302 407		Flower and Fifth Avenue Hospitals+140 Gen NPAssn 340 243 71 1,355 7,803	3
Ulster County Tuberculosis HospitalTB Lackawanna, 24,058—Eric	County	56	54			80	Fordham Hospital*+40 Gen City 558 483 51 1,103 12,103 Franklin Maternity Sanitar-	
Lackawanna, 24,058—Eric  Moses Taylor Hospital* Indu Our Lady of Victory Hos-	s NPAssn	28	12			358	ium	ı
Our Lady of Victory Hos- pital** Gen	Church	148	128	32	938	3,532	Gotham Hospital Gen Corp 82 52 24 401 2,070 Gouverneur Hospital*4 Gen City 200 163 20 317 4,170	3
• TB	NPAssn	145	121			94	Harlem Eye and Ear Hos- pital+4 ENT NPAssn 50 8 1,453	;
L Lake Placid General Hosp Gen	City	19	11	6	54	357	Harlem Hospital*+** Gen City 593 C00 109 2,452 16,683 TB City 61 50 663	
Liberty, 3,788—Sullivan Maimonides Hospital Gen	NPAssn	40	22	5	89	725	Hospital for Joint Dis- eases*+4	
Workmen's Circle Sanator- iumTB	NPAssn		46			98	Hospital for Special Surgery+AOrth NPAssn 250 175 3.519	
Little Falls, 10,163—Herkimer Little Falls Hospital Gen	NPAssn			13		1,855	Hospital of the Rockefeller In- stitute for Medical Re-	
Livingston, 406—Columbia Potts Memorial Hospital TB	NPAssn					24	search Gen NPAssn 60 31 307 Hunts Point Hospital Gen Corp 90 No data supplied	} ]
Lockport, 24,379—Niagara Lockport City Hospital Gen	City	120	•	30	602		International Medical Center Gen NPAssn 70 15 15 10 420 Jewish Maternity Hospital Unit of Beth Israel Hospital	
Alagara Sanatorium TB	County		181		•••	172	Jewish Memorial Hospital*, Gen NPAssn 174 133 36 1,060 4,417 Knickerbocker Hospital*, Gen NPAssn 179 123 41 598 3 723	
Long Beach, 9,636—Nassau  Long Beach Hospital Gen  Long Island City, —Queens	. NPAssn	53			71	1,307	Lefa-Central Maternity Hosp. Mat Indiv 30 29 30 1,141 1,201	į
Astoria Sanatorium Gen Boulevard Hospital Gen	Indiv Corp	2S 7S	23 60		376 844	869 2,761	Lenox Hill Hospital*+A0Gen NPAssn 513 353 68 1,237 10,759 TB NPAssn 39 32 152	,
	•				 1		replations to an east 1071	

	NEW	YOR	KCor	ntinue	eđ			
		44	trol		e) +-	ţ	10.	
Hospitals and		Type of Service	Ownership or Control	Bedīs	Average Census †	Bassinets	Number of	Admis-
Le Roy Sanita Lincoln Hospid	rium	. Gen	Corp	54	39	12	218	
			City NPAssr	430	431	70	1,605	12,382
TAME-III DOSDI	ιαι <b>τ≖</b>	Unit	of New Y	1 115 Tork H	80 ospita	26 1	655	2,642
ACMINIMACEUM TAS	L, LAI AHU							
Throat Hosp Manhattan Ger Manhattan Ma	ternity and		NPAssi Corp	315	140 139	50	677	14,117 5,313
Dispensary Manhattan Sta	ate Hospital	• Ment	oi New Y State	OFK H 3 240	ospita 2.826	I		1,053
Memorial Hos	enter Hosp Pital for tl Cancer and	. Gen he	Corp	136	75	9	289	2,888
Allied Disease	8+4	. Cance	r NPAssn	213	187			4,617
Metropolitan H	tospitai*+*o.	. Gen TB	City City	783 396	685 396	58		11,054
Midtown Hosp	ital≜	. Gen	NPAssn	61	33	••	··i	
Misericordia H Monteflore Hos	ospitai*≜≎	. Gen	Church	201	126	62	1,069	3,709
Diseases*+A		. Gen	NPAssn		530			1,447
Morrisania City	. Hospitalta	TB	NPAssn		155			362
Mother Cabrini	Memorial Ho	S-	City	.471	410	68	1,034	12,851
pital		. Gen	Church		100	25	452	
Mt. Eden Host Mt. Sinal Hos Murray Hill Ho	nital*+4¢	. Gen	Indiv NPAssn	40 1 856	31 648	30	480	1,718 16,585
Murray Hill He	spital	. Gen	Corp	86	42	••	•••	1,889
Neurological In York+40			NPAssn	205	158			3,332
New York City	Cancer In-					•	•••	
stitute Hospi New York City New York Eye	tal+≜ Hospital*f≜.	. Cance . Gen	r City City	192 850	185 677	òò	757	938 9,484
New York Eye	and Ear In-		Ong			00	101	-
firmary+A New York Four	• • • • • • • • • • • • • •	. ENT	NPAssn	184	113	••	•••	6,151
pital+4⊙		MatChi	l Church	133	70	56	689	1,564
New York Hosp	nital*+**	. Gen	NPAssn	919	730	142	2,903	10,807
New York Infirm	t+4	Gen	NPAssn	124	85	39	942	2,657
New York Nurs	ery and		e Now Y	onle Wa	onital			
Childs Hospita New York Ortho	maedic Disper	1-		OIK IIU	, syntai			- {
sary and Hos	nital+▲	Orth	NPAssn	301	254	••	• • •	1,739
New York Polye School and H	enne medieni ospital*+*	Gen	NPAssn	371	248	37	955	7,841
New York Post-	Graduate Med	[[-	ND 1	43.4	010			
eal School and New York Skin		Gen	NPAssn	414	316	••	•••	9,213
Hospital		Unit o	of New Yo	ork Po	st-Gra	dus	ite Me	dical
New York State	Psychiatric	Seno	ol and He	ospitat				}
Institute and	Hospital+A©.		State	150 107	143	is	453	294
Park East Hosp Parkway Hospi	nitai itni	Gen	Corp NPAssn	75		10	312	3,125 1,294
Park West Hos	spital	Gen	Corp	74	50	14	257	2,461
Payne Whitney	Psychiatric	Unit o	f New Yo	rk Ho	spital			}
ClinicA Presbyterian He	ospital and				-			{
Sloane Hospit	al for wo-	Gen	NPAgen	893	688 1	44	2,597	18,440
Psychiatric Pay Reconstruction	ilion	Unit c	f Bellevu	e Hosp	oltal	,		
Reconstruction 1	Hospital	Unit o	of 1797 to	ork Po osnital	st-Gra	aua	16 716	aicai
Riker's Island	Hospital⁴	Gentine	City	200	120	••	•••	0,200
Dimendida Homi	4 n 1 de 4	TB	City City	26 284	0.0	••		80 445
Riverside Hospi		180	City	48	31			242
Roosevelt Hosp St. Ann's Mater	itaj*+≜≎	Gen	NPAssn	398 rk Foi	284 indlins		ospita	7,263
St. Clare's Hosp	OFFOIRA	Gen	Church	020	100	••	000	0,004
+ 111, S	Tannital	Gen Gen	Church Church	135 354		27 47 :		2,652 6,573
	= <del>-</del>	Unit o	f New Yo	ork Fo	undlin			
		TB	Church	300	294	٠.		711
	***	Gen	NPAssn	493	377	44	976	8,698
1		Gen TB	Church Church	421 270		**	310	8,919 309
		8-	•					1
		TB _	Church	305	297			375
Cloops Hoen for	r Women+≜©.	See Pr	esbyteria	n Hosi 181	pital 144 :	24	771	4,651
			NPAssn NPAssn	55	42	20		1,470 2,737
Union Hospital U. S. Hospital S	ship Relief▲	Gen	Navy	367 464	173 . 327 .	•		2,469
U. S. Marine D	hts Sanit	Gen		50	40 ]	17	393	1,612 5,711
Veterans Admin	. Facility	Gen TB	Vet :	1,546 1 74	1,046 . 50 .		'	358
Wabb Sanitatin	m	7.10	Corp	19		2	100	307
Walfara Hashits	I IOL CHLOING		City	1,889 1	,545			2,076
Disenses*** Westchester Squ			Corp	77 70	64 3	2	825	2,819 271
West Hill Sanit	arium	Gen	Indiy Corp	76	51	9		2,503
Wickersham Ho Willard Parker	HOSH, TAY,	150	City	252 172		:	(	5,358
William Booth	Memorial	110	City					ſ
William Booth		Gen	Church	48 224	24 2 149 10	4 0 1	,258 ,813 3	775 3,931
Woman's Hospi	on Niggorn	0,1.00						•
MI ST MATES	HOSDILAI	Gen	Church	170	144 3	ა 1		,553
Niagara Falls M - Hospital			NPAssn	166	153 2	4	779 E	6,097
· Troshum - · · · ·				Key	to syr	nbol	s and	abbrevi
				-				

				Mas	ксн 28, 1942
	NEW YO	RKCo	ıtinu	eđ	
	<u> </u>	<u>₽</u> 0			jo
	Hospitals and Sanatoriums	Service Ownership or Control		Average Census † Bassinets	Number of Births Admissions +
	Hospitals and Sanatoriums		ĝ.	nsu nsu	lumbe leths dmis
		6 6 6	Bed	AS E	A Bra
3	Veterans Admin. Facility. Mer North Tonawanda, 20,254—Niagara	ıt Vet	2,220	2,192	344
3	I DE GIBII DIEMOFIS! HOSO Gos	City	51	41 18	616 2,510
	Norwich, 8,694—Chenango Chenango Memorial Hosp. A. Gen				
7			1 77	50 15	208 1,765
	Ogdensburg, 16,346—St. Lawrence	Corp	88	95 16	442 2,752
3	Nyack Hospital Gen Ogdensburg, 16,346—St. Lawrence A. Barton Hepburn Hosp. Gen St. John's HospitalTB St. Lawrence State Hosp. 4 Mer Olean, 21,506—Cattaraugus	Church	150	80 25	359 4,067
3	St. Lawrence State Hosp.+Ao Men	Church t State	45 2,237	32 2,051	44 SG2
	Olean, 21,506—Cattaraugus Mountain Clinie Gen	Indiv	33		
	Orean General Hospital Gan	NPAssn	79	15 5 47 23	67 491 377 1,847
	Rocky Crest Sanatorium TB St. Francis Hospital Gen	County Church	43 103	38 41 18	313 1,388
	Oneida, 10,291—Madison Main Street Hospital Gen				,
	Oneiua Oity Hospital Gen	Indiy City	14 82	10 4 62 17	95 375 360 2,025
:	Oneonta, 11,731—Otsego Aurelia Osborn Fox Memorial				
Ì	Hospital Gen Homer Folks Tuberculosis	NPAssn	54	57 <i>6</i>	287 2,147
1	HOSDital+▲© mp	State	250	245	801
3	Parsnall Private Hospital Gen Orangeburg, 750—Rockland	Indiv	28	7 6	65 252
1	Parshall Private Hospital Gen Orangeburg, 750—Rockland Rockland State Hospital+4 Meni Ossining, 15,996—Westchester	t State	7,268	6,915	1,704
l	Ossining Hospital Gen	NPAssn	66	57 10	225 1,770
	Sing Sing Prison Hospital Inst.	State	84 35	34 22	2,111
1	Stony Lodge Foundation N&A Oswego, 22,062—Oswego	I MI MOSH			
1	Oswego Hospital Gen Station Hospital Gen	NPAssn Army	89 34	54 11 28	2,201 455
1	Otisville, 889—Orange Municipal Sanatorium+4 TB		400	391	557
I	Owego, 5,068—Tioga	City			
1	Glenmary Sanitarium N&M Peekskill, 17,311—Westchester	Corp	50	8	4
	Peekskill, 17,311—Westchester Peekskill Hospital	NPAssn	73	48 16	354 1,778
1	Penn Yan, 5,308—Yates Soldiers and Sailors Memorial				
1	Hospital Gen Perrysburg, 375—Cattaraugus	NPAssn	50	28 10	163 996
1	J. N. Adam Memorial Hosp. TB	City	482	435	370
	Philimont, 1,679—Columbia Columbia Sanatorium TB Plattsburg, 16,351—Clinton	County	72	50	🕽
	Plattsburg, 16,351—Clinton Champlain Valley Hosp. 49 Gen	NPAssn	104	91 15	326 2,750
1	Champlain Valley Hosp. 40 Gen Physicians Hospital Gen	NPAssn	99	78 18	313 2,959 32 1,353
1	Station Hospital Gen Pomona, 50—Rockland	Army	70	51 3	
	Summit Park Sanatorium . TB Port Chester, 23,073—Westchester	County	90	84	71
}	Mary Harkness Home for Con-	MDAgen	EΛ	47	583
	valescent Care Conv St. Luke's Convalescent Hos-	NPAssn	50	41	
1	pitai See G	reenwich, C NPAssa	onn. 166	144 36	845 4,723
}	United Hospital*4 Gen Port Jefferson, 3,500—Suffolk				
	John T. Mather Memorial Hospital	NPAssn	58	56 12	317 2,096
1	St. Charles Hospital for Crip- pled Children Orth	Church	210	183	111
1	Wharton Memorial Institute Unit	of St. Char Children	les Ho	spital for	Ctip-
1	Port Jervis, 9,749-Orange			25 10	97 774
1	St. Francis Hospital Gen Potsdam, 4,821—St. Lawrence	Church	55		
1	Potsdam Hospital Gen Poughkeepsie, 40,478—Dutchess	NPAssn	63	67 22	324 2,289
1	Hudson River State HOS-	State 4,0	312 4,4	34	047
l	pital+40 Ment St. Francis Hospital40 Gen			71 25 3	314 2,126
l	Samuel and Nettie Bowne Hospital TbCard	NPAssn	50	31	112
1	Hospital	CyCo 1	31 1	17	93
	Vassar Brothers Hosp ven			60 33 7	80 4,205
	Queens Village, —Queens Creedmoor State Hosp.+Ao Ment	State 4,6	57 4,5	54	1,003
	Ray Brook, 550—Essex New York State Hospital TB	State 3	79 3	62	431
1	Rhinebeck, 1,697—Dutchess				
	Northern Dutchess Health Service Center Gen	NPAssa 3	34 3	20 9 1	15 623
	D99791 Pant 900	County 10	)5 £	3	80
1	Oswego County Sanatorium TB Rochester, 324,975—Monroe Genesee Hospital*+40	NPAssn 2			
		NPAssn 20		5 00 1,12	5 5,002
	locis Sanstorium+A TB	County 37			i 2,500
	Monroe County Hospital Gen	County 50 NPAssn 8	5 .7	1 20 37	7 2,611
	Rochester General Hosp. *+40 Gen Rochester Municipal Hos-	NPAssn 32			
	pital***A	City 32 State 3,27 Church 22	1 21 0 3,00		
	Rochester State Late Add Gen			7 32 90	7,500 7,627
,	Strong Memorial Hosp. *+AO Gen	NPAssn 32	5 216	, .,	
ı	St. Mary's Bospital St. Alary's Hospital Hosp. * + A & Gen Rockaway Beach, —Queens Neponsit Beach Hospital for Thor	CyCo 12	100	;	150
	Children	-,			
., 7.	tions is an azae 1071				

NEW Y	ORK-	—Cont	inued	ī			
		di o		en <del>+-</del>	23	jo.	
	ice ice	Ownership or Control	en.	Average Census †	Bassinets	Number Births	118- 18 ↓
Hospitals and Sanatoriums	Type Servic	O I	Bed	Ave	Bas	Nun	Adn
Rockaway Beach Hospital and	_	NPAssn	110	75	15	326	2,963
Dispensary		Church	70		28	492	1,310
Mercy Hospital							٠.
Hospital		NPAssn	70			1,060	3,444
Oneida County Hospital G Rome Hospital and Murphy Me	-	County	200	183	8	106	2,034
morial Hospital		City Indiv	116 25	69 5	26 6	688 10	2,617 141
Rome State School	IeDe 1	State	3,614	3,558	24	10	284
Station Hospital	Gen	Army	80	14	••	•••	432
City Hospital	ien	City	46	39	10	270	1,686
Pine Crest Sanatorium	LPR .	County	90	87	••	•••	58
Saranac Lake, 7,138—Franklin General Hospital	en :	NPAssn NPAssn	36 26	27 22	6	100	986 32
Northwoods Sanatorium Reception Hospital	rB	Corp	20	18	••	•••	15 34
Will Rogers Memorial Hosp. A 7 Saratoga Springs, 13,705—Sarato	ga	NPAssn	80	77		010	
Schenectady, 87,549—Schenectady	ien	NPAssn	90 .	53	17	219	1,853
Eastern New York Orthopedic							~-
View"	OrChil Sen	NPAssn NPAssn	35 400	$\frac{26}{316}$	<del>7</del> 0	1,200	51 11,922
Schenectady County Tubercu- losis Hospital (Glenridge							
Sanatorium)	$\mathbf{r}_{\mathbf{B}}$	County	136	112	••	•••	123
Seneca Falls Hospital Sherburne, 1,192—Chenango Chenango County Tuberculos	Gen	City	29	20	11	148	656
Chenango County Tuberculos	is TR	County	33	22			14
Hospital	Can	Indiv	25	13	7	63	36 <del>1</del>
C	COL						
••••		State	2,364	2,353	••		293
Stamford, 1,088-Delaware		NPAssn	109	45	19	269	1,508
Bathgate Hospital	Gen Richmo	NPAssn nd	18	4	6	45	239
U. S. Marine Hospital**	Gen	USPHS	869	571	6	31	8,329
		City NPAssn	36 100	16 79	is	340	348 2,086
Seaside Hospital	Unit o	Church	217	176 Speci	33	764	4.950
Sea View Hospital+4⊙	New 7	ork City City	2,008	1,973	10	22	2,110
Staten Island Hospital** Suffern, 3,768—Rockland	Gen	Corp	255	162	44	1,211	5,142
Good Samaritan Hospital	Gen	Church	89	65	16	280	1,907
Sunmount, 50—Franklin Veterans Admin. Facility	TB	Vet	518	367	••	•••	597
Syracuse, 205,967—Onondaga City Hospital	Iso	City	84	30	::	1 000	618
Crouse-Irving Hospital**	Gen Gen	NPAssn NPAssn	215 85	193 84	$\frac{25}{25}$	1,060 733	7,336 2,901
Hospital of the Good Shepherd*+** Onondaga General Hospital		NPAssn	210	176			4,876
Onondaga General Hospital	TВ	NPAssn County	70 255	32 224	6	23	797 265
Peoples Hospital St. Joseph Hospital*▲◊	Gen Gen	NPAssn Church		13 160	8 35	$\frac{65}{942}$	466 6,600
St. Mary's Maternity Hospital		Church	37	16	29	416	463
and Infants Asylum Syracuse Memorial Hosp.*+40 Syracuse Psychopathic Hos-	Gen	NPAssn		193	40	1,466	6,236
pital4	Ment N&M	State Indiv	60 10	53 6		•••	663 59
T	Gen	NPAssn		46	13	272	1,805
-		State	3,690	3,956	6	12	499
		_	47	30			
Troy, 70,301—Rensselner	_	Corp			6	142	948
Marshall Sanitarium	N&M	NPAssi NPAssi	60	98 41 Horoid	16	526	2,809 322
Price Memorial Hospital St. Joseph's Maternity Hos-				-		000	0.07
pital	Geniso			10 132	26 21	290 512	327 4,743
Troy Hospital**  Trudeau, 600—Essex		Church	272	201	22	477	4,443
Trudeau Sanatorium+40 Tupper Lake, 5,451—Franklin	TB	NPAssn		192	••	•••	208
Tupper Lake, 5,451—Franklin Mercy General Hospital Tuxedo Park, 2,500—Orange Tuxedo Memorial Hospital	Gen	Church	28	14	5	50	435
Otica, 100,518—Oneiga		NPAssr		17	7	60	558
Children's Hospital Home. Faxton Hospital.	OrthTt Gen	NPAssr NPAssr	1 40 1 84	27 75	is	364	2,849
Masonic Soldiers and Sailors Memorial Hospital	_	NPAssr	200	100		•••	412
Oneida County Tuberculosis Sanatorium (Broadacres)	TB	County		162			141
St. Elizabeth Hospital	Gen	Church		124	20	583	4,532

NEW Y	ORK	Con	tinue	đ			
	-	tion for		- ن	Inets	9	
Hernitele and Sanatoriums	pe of vice	Ownership or Control	3s	Average Census †	sefne	Number Birtbs	dmis- lons †
Hospitals and Sanatoriums	Type Servic	or or	Beds	Ave	Bassl	Nur	Adı
St. Luke's Home and Hospital	Gen	Church	123	78	28	434	2,861
Utica General Hospital▲ Utica Memorial Hospital▲	Gen Gen	City NPAssn	$\frac{124}{77}$	70 49	$\frac{14}{25}$	190 346	3,721 2,670
Titing State Hespital+40	Ment	State	1,786	1,770	••	•••	536
Worself 2551 Www.mg	Gen TB	County County	535 275	360 258	15 ••	158	4,681 268
Warsaw, 3,554—Wyoming Wyoming County Communit Hospital	y Gen	County	115	90	20	381	2,501
Warwick, 2,534—Orange St. Anthony's Hospital		Church	52	15	14	64	506
Waterloo, 4,010—Sencea Waterloo Memorial Hospital		NPAssn	25	15	5	109	466
Watertown, 33,385—Jefferson House of the Good Samari-		NTD Lane	125	101	18	322	2,921
tan▲◆ Jefferson County Sanator- ium+		NPAssn County	78	10± 58	10	ن د ۰	68
Mercy Hospital Waverly, 5,450—Tioga	Gen	Church	114	SS	32	467	2,574
Tioga County General Hos-	Gen	NPAssn	65	59	12	192	1,483
. •	Gen	Part	17	15	3	61	398
and Gertrude F. Jones	F. Gen	City	45	35	10	273	1,783
and Gertrude F. Jones West Haverstraw, 2,533—Rockla New York State Reconstruct	inπ	-					
Home+▲ West Point, 4,530—Orange	OrChil	State	310	127	••	•••	281
Station Hospital  White Plains, 40,327—Westchest New York Hospital—West-		Army	158	79	8	80	3,470
chester Division+4⊙ New York Orthopaedic Dispen	N&M -	NPAssn	350	273	••	•••	378
sary and Hospitai, Country Branch	Unit o	f New Yo	ork Or	thopa	edie	Dispe	nsary
St. Agnes Hospital*4	and I	Iospital, Church	New 1 138	York ( 93	City 39	517	3,595
White Plains Hospital*** Winifred Masterson Burke	Gen	NPAssn	172	111	24	491	3,965
Relief Foundation Willard, 600—Seneca	Conv	NPAssn	250	216		•••	4,372
Willard State Hospitale Wingdale, 500—Dutchess Harlem Valley State Hos-	Ment	State	3,032	2,892	••	•••	368
woodhaven. —Queens		State	4,800	4,402	••	•••	535
St. Anthony's Hospital Wynantskill, 200-Rensselaer	тв	Church	390	344	••	•••	949
Pawling Sanatorium Yaphank, 350—Suffolk Suffolk Home and Infirmary	TB	County	118	100	••	•••	86
Yonkers, 142,598 - Westchester			257 45	235	••	•••	405
Gray Oaks Hospital House of Rest at Sprain Ridge		City	100	45	••	•••	65
St. John's Riverside Hos-		NPAssn		82	24		126
St. Joseph's Hospital*4	Gen	NPAssn Church	188 177	155 92	20	603 401	$\frac{4,274}{2,674}$
Yonkers General Hospital*▲ Yonkers Professional Hosp.		NPAssn Corp	142 100	91 66	38 25	650 394	3,345 2,200
Related Institutions Albany, 130,577—Albany							
Albany's Hospital for Incur-		NPAssn	100	98			81
St. Margaret's House and Hospital		Church	55	45		•••	75
Albion, 4,660—Orleans Albion State Training School	McDe	State	484	329	3	9	137
Orleans Welfare Hospital Alden, 954—Erie Erie County Penitentiary	Gen	County	40	25	5	27	59
Hospital	Inst	County	27	8	••	•••	128
Brunswick Home	N&M	Corp	320	262		•••	383
1	-3en	Indiv	12	7	3	58	203
Westfield State Farm Binghamton, 78,309—Broome		State	59	20	33	•••	482
Binghamton Training School for Nervous, Backward an Mental Defectives	d .	Indiv	50	43			16
Brooklyn, 2,698,285—Kings Brooklyn Hebrew Home and					••	•••	15
Hospital for Aged Churchill Sanitarium Buffalo, 575,901—Eric	Gen	NPAssn Indiv	701 12	611 6	::	•••	245 66
Ingleside Home Castile, 902—Wyoming Greene Sanitarium (Castile	Mat	NPAssn	8	2	21	71	71
Sanitarium)	Conv	Indiv	45	16	••	•••	40.
Cragsmoor, 100—Ulster Vista Maria	Conv	Church	30	28		•••	150
Delaware Infirmary  Eastview, 1,000—Westchester	Inst	County	14	10			239
Solomon and Betty Loeb Mo morial Home for Convales		<b>3</b> *D 4	•••	***			<b>-</b> 600
cents	CORT	NPAssn	105	106	••	•••	1,693

NEW YO	RKCor	ıtinud	èd				NEW YORK-Continued
	ro in			brj	oţ		
Related Institutions 844	Service Ownershin or Control	I.s	Average Census †	Bassinets	Number of Births	Admis- sions †	Type of Service Service Ownership or Control  Beds Average Consus †  Bassinets Number of Number of Mumber
E V	or of	Beds	AA Gei	Ba	Bir	Adı	State School. —Orange
Elmira, 45,106—Chemung Elmira Reformatory Hosp Ins Far Rockaway, —Queens	t State	100	21		•••	1,080	State School, —Orange Hospital of New York State Training School for Boys. Inst State Syracuse, 205,967—Onondaga
Wave Crest Convalescent Home Or	Chil NPAssr	120	69	••		144	Syracuse State School McDe State 1,166 1,025 117 Troy, 70,304—Rensselaer
Hawthorne, 2,000—Westchester Rosary Hill Home Ca Industry, 350—Monroe	neer Church	110	95	••		180	Rensselaer County Welfare Home
Industry, 350—Monroe Hospital of State Agriculture and Industrial SchoolIns	t State	50	21	••		891	American Legion Mountain Camp
Iroquois, 40—Erie Thomas Indian School Hosp. In: Ithaca, 19,730—Tompkins	t State	36	15	••		629	Orth NPAssn 70 54 106
Bailey-Jones Hospital Ge Reconstruction Home Or	ı Indiv h NPAssı	14 1 100		::		217 98	Wallkill, 800-Ulster Wallkill State Prison Hosp., Inst State 18 5 247
Johnson City, 18,039—Broome Mrs. Springer's Private Hos- pital	t Indiv	18	7	14	97	114	Wassaic, 350—Dutchess Wassaic State School ¹ McDe State 4,378 4,825 6 15 510 Williamsvilla 3614—Fria
pital							Williamsyllle, 3,614—Eric Josephine Goodyear Conya- lescent Home ConvChil NPAssn 60 54 198 Woodbourne, 500—Sullivan
House and Hospital Ge Kingston, 28,589—Uister Hackett Sanitarium and Nurs-	n NPAssr	1 11	5	2	23	. 91	Woodbourne, 500—Sullivan   Woodbourne Institution for   Defective Delinguents McDe State 750 749 211
ing Home Co Lake Ronkonkoma, 1,000—Suffolk		35	15	••	•••	42	Yonkers, 142,598—Westchester Yonkers City Hospital for
Gary de Vabre Academy Me Millbrook, 1,340—Dutchess		18	7	••	•••	7	Communicable Diseases Iso City 57 16 315
Cardinal Hayes Convalescent Home for Children Co Napanoch, 750—Ulster	ny Church	62	46	••	•••	169	NORTH CAROLINA
Deliquents Me		28	12			166	Appendic of Service Or Control of
Newark, 9,646—Wayne Newark State School Me New York City, 7,454,995—New York		2,563	3,150	9	7	265	Hospitals and Sanatoring control of Control
Beth Abraham Home for Incurables Inc		1 256	256			56	Stanly General Hospital Gen NPAssn 27 16 5 117 1,167
Bryant Sanitarium	£ IDUIA	10	2	10 	64	70 817	Yadkin Hospital Gen NPAssn 40 27 7 252 1,629   Asheboro, 6,981—Randolph   Randolph Hospital A Gen NPAssn 40 27 6 171 1,439
Home for Aged and Infirm  HebrewsIn: Home for DependentsIn:	t NPAssr t City	1 31 1,847	12 1,857			187 1,064	Asheville, 51,310—Buncombe Appalachian Hall
Home for Henrew Intants 10	L 11 FA 551	1 61	18	••	•••	626 235	Aston Park Hospital Gen NPAssn 45 34 11 213 1,531
Home for Incurables Ca House of Calvary Ca	ncer Church	146		::		634	Newhyrn Hospital Nem NEASSH 60 30 3 61 1,276
St. Andrew's Convalescent Hospital			13			253	St. Joseph's Hospital Gen Church 90 85 17 300 1,450
St. Mary's Hospital for			50		• • •	498	Wesnoca
St. Rose's Free Home for in- curable Cancer Ca			91		•••	300	Badin Hospital Gen Corp 28 6 4 55 1931
Niagara Falls, 78,029—Niagara Niagara Falls Municipal Hos- pital	City	38	15			163	Grace Hospital Ao Gen Church 53 43 12 188 1,237 Beautort, 3,272—Carteret Potter Emergency Hospital. Gen Corp 12 4 4 70 231
In:		232	230		•••	604	Biltmore,—Buncombe Biltmore Hospitalo Gen NPAssn 55 40 12 200 1,523 Black Mountain, 1,642—Buncombe
New York State Woman's Relief Corps Home In	t State	61	63			179	
Pawling, 1,446—Dutchess		19	11			1	ium
Pelham Manor, 5,302—Westenester		1 30	28		•••	46	Western North Carolina Sanatorium TB State 205 200 256 Brevard, 3,001—Transylvania
Plensantville, 4,454—Westchester Hebrew Sheltering Guardian Orphan Asylum			7			562	Transylvania Community Gen NPAssn 23 7 2 56 43
Poughkeepsie, 40,478—Differess		52	41			371	Gen NPAssn 42 28 5 133 1,493
firmary			12			1,166	ENT Part 20 16 1,768  ENT Part 20 16 12 5.37  Charlotte Memorial Hosp.** Gen NPAssn 283 150 25 416 5.37
Baldwin House In Queens Village, —Queens	-	. 12	3	8	64	112	Good Samaritan Hospitalo Gen Church 101 58 12 831 4,100
Rhinebeck, 1,697—Dutchess			22			241	New Charlotte Sanatorium Gen Church 175 158 32 762 5,151
valescent Children	nv NPAssi	1 25	22	••	•••		Cherokee, 500—Swain Fastern Cherokee Indian
Convalescent Hospital for Children	nv NPAssı nv Indiv	25	49 20	::	•••	138 63	Hospital Gen IA 25 10 7  Columbia, 1,090—Tyrrell Gen Indiv 15 8 4 21 40 7  Columbia Hospital Gen Indiv 15 7
Field Sanitarium Co		35	10	••	•••	45	Gen County 125 116 25 201 3,0
Rockaway Park, —Queens Convalescent Home for Hebrew Children Ortho	onv NPAssi	1 112	97	••	•••	360	Gen NPAssn 20 10 11 01 412
Roslyn, 972—Nassau St. Francis Sanatorium for Cardiac Children Ca			114			122	Gen NPAssn 99 51 9 218 1/63
Rye, 9,865—Westchester		47	37		•••	83	
Saranac Lake, 7,138—Frankin	Indiv	15 30	12 25	::	•••	20 45	Gen CyCo 45 25 5
Schenectady, 87,549—Schenectady	t Indiv	19	18		607	617	rial 60 37 12 176 1,555  Hospital
Schenectady County Home	e County	65 35	4S 13			215 349	Erwin, 3,500—Harnett Gen NPAssn 31 10 8
Schenectady Isolation Hospital						510	Cumberland County Tuber-
lescent Bables	nv NPAssi	1 70 1,152		••	•••	430	Cullosis Sanatorinal Highsmith Hospital R. L. Pittman Hospital Veterans Admin. Facility Gen Vet  Cullosis Sanatorinal NPAssn 120
New York City Farm Colony In Sailors' Snug Harbor Hosp. Ge	n NPAssi	- 101	131		 ole an	451   d abbr	eviations is on page 1071
		K	cy io	, <b>3</b> 111 D	.,, 611		

NORTH CA	ROL	INA—(	Conti	inued	l		1
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census t	Bassinets	Number of Births	Admis- sions †
Fletcher, 500—Henderson Mountain Sanitarium and	£.02	,, ,		,,,			
Hospital		Church	55	41	5	81	1,114
Franklin, 1,249—Macon		Army	530	174 29	9 6	95 40	7,043 1,236
Angel Hospital		Indiv	55 80	32	10	48	1,280 1,543
Garrison General Hospital. Gaston County Negro Hosp.	Gen	NPAssn County	50 22	23 10	10 3	293 13	1,543 265
North Carolina Orthopedic		State	160	161		• •	457
State Hospital Greensboro, 59,319—Guilford	Gen Ment	NPAssn State	106 2,600	68 2,420	9	207	2,745 653
Greensboro, 59,319-Guilford Glenwood Park Sanitarium . Pledmont Memorial Hosp A L. Richardson Memorial Hos	Gen	Corp NPAssn	25 57	17 48	ii	279	375 2,463
pitalo St. Leo's Hospital for Sternberger Hospital for		NPAssn Church	60 81	40 60	8 9	134 296	1,516 2,666
Sternberger Hospital for Women and Children C Wesley Long Hospital	Gen	NPAssn Corp	42 65	34 61	10 10	239 262	1,114 2,376
Pitt General Hospital		NPAssn	60	32	3	113	1,852
Hamlet, 5,111—Richmond Hamlet Hospital ^o Henderson, 7,647—Vance	Gen	NPAssn	45	38	5	86	1,315
Jubilee Hospital Maria Parham Hospital	Gen Gen	Church NPAssn	30 41	24 21	3 6	31 119	521 1,061
Hendersonville, 5,381—Henderso Patton Memorial Hospital Hickory, 13,487—Catawba		NPAssn	39	15	6	104	840
Hickory Memorial Hospital Richard Baker Hospital High Point, 38,495—Guilford	Gen Gen	NPAssn Indiv	34 60	15 30	6 14	117 277	858 1,540
Burrus Memorial Hospital*  Guilford General Hospital	Gen Gen	NPAssn NPAssn	68 38	54 29	7 5	265 273	1,965 1,817
Huntersville, 763—Mecklenburg Mecklenburg Sanatorium. Jamestown, 900—Guilford		County	140	140			158
Gullford County Sanator- num Jefferson, 304—Ashe		County	139	139	••		132
Ashe County Memorial Hos pital	Gen	NPAssn	24		6	Estab	1941
Parrott Memorial Hospital.	Gen Gen	NPAssn NPAssn	69 40	33 20	7 5	182 191	1,661 1,267
Laurinburg, 5,685-Scotland	Gen	NPAssn	29	13	4	57	543
I cnoir, 7,5%—Caldwell Blackwelder Hospital	Gen	NPAssn	45	26	5	121	1,631
Caldwell Hospital	Gen Gen Gen	NPAssn NPAssn Indiv	27 25 25	14 12 10	7 2 5	192 87 42	638 636
Lexington, 10,550—Davidson Davidson Hospital		County	25	12	8	94	885
Lincolnton, 4,525—Lincoln Gordon Crowell Memorial HospitalAo Reeves Hospital Lumburton, 5,803—Robeson	Gen	Corp	50	25	8	115	1,703
	Gen Gen	NPAssn NPAssn	35 79	19 52	6	120 242	965 2,862
Thompson Memorial Hosp AC Marion, 2,889—McDowell	Gen	NPAsen	75	60	10	338	3,084
Marion General Hospital Mocksville, 1,607—Davie Mocksville Hospital	. Gen Gen	NPAssn Indiv	41 10	28 4	6 6	344 88	2,090 1,563
Monroe, 6,475—Union Ellen Fitzgerald Hospital* Mooresville, 6,682—Iredell	. Gen	NPAssn	55	24	5	99	1,201
Lowrance Hospital Ao . Morehead City, 3,695—Carteret	Gen	NPAssn	60	55	10	380	3,001
Morchead City Hospital  Morganton, 7,670—Burke Broadoaks Sanatorium	Gen N&M	City Part	25 75	14 32	6	94	658 106
Grace Hospital	Gen	Church State	82 2,828	58 2,518	18	363	3,066 751
Mt Airy, 6,226—Surry Martin Memorial Hospital ⁴ Murphy, 1,873—Cherokee Petric Hospital Mash vilo 1,17, Noch	Gen	NPAssn		47	6	84	1,627
Petric Hospital	. Gen	Corp	25	11	6	71	570
Tuberculosis Sanatorium New Bern, 11,815—Crayen	_	County	31	30			22
St. Luke's Hospital Newton, 5,407—Catawba Catawba General Hospital	. Gen Gen	NPAssn Corp	35 37	24	io d 10	ata su: 192	pplied 1,036
North Wilkesboro, 4,478—Wilke	Gen	NPAssn		30	6		
Otcen, 1,200—Buncombe Veterans Admin, Facility*. Oxford, 3,991—Granville	. TB	Vet	830	739			1,393
Granville Hospital Susie Clayton Cheatham		NPAssn	22	12	5	45	611
Memorial Hospital Pinebluff, 330—Moore		NPAssn		8	1	22	202
Pinebluff Sanitarium	VXV.	Indiv	35	21	••		130

## NORTH CAROLINA-Continued Number of Berths Ownership or Control Bassinets Type of Service Average Census Admis-sions † Hospitals and Sanatoriums Pinehurst, 1,600-Moore Moore County Hospital*.. Gen Raleigh, 46,897-Wake Pinehurst, 1,600—Moore Moore County Hospital*O. Gen Raleigh, 46,897—Wake Central Prison Hospital... Inst Mary Elizabeth Hospital O. Gen Rev Hospital*AO... Gen Rev Hospital*AO... Gen Royster Medical Center*A... Unit o St. Agnes Hospital*O... Gen State Hospital*O... Gen State Hospital*O... Gen State Hospital*O... Gen Roanoke Rapids Hospital*O. Gen Roanoke Rapids Hospital*O. Gen Rocky Mount, 25,568—Nash Atlantic Coast Line Hosp.A Indus Park View Hospital*AO... Gen Rocky Mount Sanitarium*O. Gen Roseboro, 939—Sampson Brewer Starling Clinic Gen Roseboro, 939—Person Community Hospital ... Gen Roxboro, 4,599—Person Community Hospital ... Gen Rutherford Hospital*AO ... Gen Sanisbury, 19,037—Rowan Rowan Memorial Hospital*A. Gen Sanishury, 19,037—Rowan Rowan Memorial Hospital*A. TB 196 2,095 NPAssn 65 50 10 State Corp NPAssn 191 40 27 193 140 26 5.515 of State Hospital 1,821 Church co 269 2,490 State 52 61 220 1,800 26 6 NPAssn 50 NPAssn 90 88 13 410 3,521 NPAssn 29 79 10 6 NPAssn NPAssn 110 74 910 767 44 Part 10 5 5 155 458 6 2 3 53 206 Part NPAssn 25 17 4 116 982 NPAssn 58 23 4 58 1.892 NPAssn 67 13 265 2.682 117 650 634 744 State 32 153 1,582 County 40 Cy Co 66 69 10 490 3,246 NPAssn 18 8 63 490 NPAssn 35 16 10 44 563 CyCo 50 16 38 538 4 NPAssn NPAssn 3,907 1,923 130 98 15 65 Ğ NPAssn 25 11 3 39 456 Indiv 15 3 6 105 272 Indiv NPAssn 5 6 44 20 779 NPAssn 36 26 3 185 1,065 NPAssn 29 14 92 6 739 NPAssn 23 19 6 112 871 Anson Sanatoriumo Gen Washington, 8,559—Beaufort Tayloe Hospitallo Gen Waynesville, 2,940—Haywood Haywood County Hospital Gen Whiteville, 3,011—Columbus Columbus County Hospital Gen Williamston, 3,966—Martin Brown Community Hospital Gen Williamston, 3,367—New Hanover Bulluck Hospitallo Gen Community Hospital Gen James Wulker Memorial Hospitallo James Wulker Memorial Hospitallo Gen NPAssn 50 34 11 700 1,360 NPAssn 69 40 G 215 1.692 County 75 67 10 403 2.711 NPAssn 55 23 10 194 1.798 Indiv 10 6 6 15 402 Corp C3 Co 47 39 12 261 pital** Wilmington Tuberculosis .. Gen NPAssn 190 154 40 G 618 Sanitarium ....TB Wilson, 19,234—Wilson NPAssn 36 40 52 Wilson, 19,234—Wilson Carolina General HospitalAo Gen Woodard Herring HospitalAo Gen Winston Salem, 79,815—Forsyth City HospitalA+Ao . Gen City Memorial Hospital . Gen Forsyth County Hospital . Gen Forsyth County Sanator NPAssn 203 8 1.287 NPAssn 211 43 1,153 8,802 White Division of City Hospital County 44 290 TB County 180 131 Kate Bitting Reynolds Memorial pitalo Gen Church 122 23 554 3,330 Wrightsville Sound, 200—New Hanover Bables Hospital? . . . . Chil 18 2 558 Related Institutions Asheboro, 6,981—Randolph Barnes and Griffin Clinic Part 20 G 4 174 536 Asheville, 51,310—Buncombe Ashville Orthopedic Home.

NPAssn

Church

Indie

23

16

17

129

41

7 221

Orth

. Gen

. TB

Pisgah Sanitarium and Hos

pital ..... iunset Heights .....

Violet Hill Sanatorium

NORTH CARC	LINACo	ntinued		NORTH DAKOTA—Continued
			of o	
Related Institutions	Ownership or Control	Beds Average Census † Bassinets	Number of Births Admis-	Hospitals and Sanatorius  Beds  Average Control Births  Births  Admis- A
Related Institutions	r C	Beds Avera Censu Bassii	Number Births Admis-	Hospitals and Sanatoriums  Avorage  Avorage  Beds  Avorage
Charlotte, 100,899—Mecklenburg Florence Crittenton Home Mat				
DRVIGSOD I Sälk-Maalelankusee		26 25 20	31	Rolla Community Hospital. Gen City 26 11 6 102 512
Davidson College Infirmary. Inst Goldsboro, 17,274—Wayne	NPAssn 2	25 3	2	Good Samaritan Hospital ^o . Gen Church 62 53 15 205 2,070
Home Con	v Indiv	2 5	3	North Dakota State Wubon
1	10014	2 5	0	Valley City 5 017 Barres 1B State 368 307 276
Henderson, 7,647-Vance	County 2	8 19		Mercy Hospitalo
Scott Parker Sanatorium TB Kinston, 15,388—Lenoir	County	4 11	•••	Gen Church 22 12 5 44 153
Uaswell Training School McD	e State 89	1 813	, (	Gen Church 40 34 10 162 1,445
New Bern, 11,815—Uraven Good Shepherd Hospital Gen		0 10 4	23 63	Gen Church 100 50 14 157 1,840
North Wilkesboro, 4,478—Wilkes Wilkes County Tuberculosis	Charen t	0 10 4	20 00	Bismarck, 15,496—Burleigh
HutTB Raleigh, 46,897—Wake	County 1	4 12	2	-   North Dakota State Peniten.
McCauley Private Hospital. Gen	Indiv 1	0 3 2	17 10	Bowman, 967—Bowman
North Carolina State School for the Blind and Deaf Inst	State 1	8 3	20	PUPID DES-Literat
Saluda, 539—Polk Infants and Children's Sani-			•••	Fargo, 32,580—Cass Gen Indiv 17 7 6 75 314
tarium Chil Spartanburg Baby Hospital Chil	Indiv 5 NPAssn 6		21	Camp Maternity Hospital. Mat Indiv 15 2 12 27 27 Cass County Hospital. Gen County 30 17 4 54 463
Tarboro, 7,148—Edgecombe	Massi (	4 32	21	City Detention Hospital Iso City 40 1 34 Florence Crittenton Home Mat NPAssn 56 24 24 49 84
Edgecombe County Tuberculosis Sanatorium TB Wilson, 19,234—Wilson	County 3	1 30	0	Grafton, 4,070-Walsh
Wilson, 19,234—Wilson Mercy Hospital Gen	CyCo 4	0 19 2	43 52	
				OHIO
NORTH	DAKOTA			rol sa col
	nip rol		ot	Sumper of British Admiss of Boths Admiss of Sorting Control Co
Hospitals and Sanatoriums AAS	Ownership or Control	Average Census † Bassinets	Number of Births Admis-	Type of Service Consus † Beds Average Consus † Bassinet Births Admils.
Hospitals and Sanatoriums	or C	Avera Censa Bassi	Number Births Admis-	Akron, 244,791—Summit
Belcourt, 200-Rolette	00 1	4 40 14	ZH 49	Akron Clinic Hospital Gen Part 12 5 525 Children's Hospital+4© Chil NPAssn 110 91 3,879
Turtle Mountain Hospital Gen Bismarck, 15,496—Burleigh	IA 5	0 34 10	152 1,03	Akron Clinic Hospital. Gen Part 12 5 525 Children's Hospital+40 Chil NPAssn 110 91 3,579 City Hospital+40 Gen NPAssn 327 312 41 2,089 11,224 East Akron Community
Bismarck Evangelical Hos- pitul Company	Church 12	3 104 12	226 2.S6	Hospital Gen NPAssn 100 1Reorganized
St. Alexius Hospital 40 Gen	Church 13		311 3,26	Peoples Hospital*+40 Gen NPAssn 181 129 34 1.210 5.572
Bottineau, 1,739—Bottineau St. Andrew's Hospitalo Gen	Church 7	5 56 12	194 1,940	St. Thomas Hospital*+40 Gen Church 148 125 27 1,058 5,340 Alliance, 22,405—Stark
Carrington, 1,850—Foster Carrington Hospital Gen	Church 2	15 10	36 345	Alliance City Hospitalo Gen City 85 50 15 453 1,975 Amherst, 2,896—Lorain
Devils Lake, 6,204—Ramsey General Hospitalo Gen	NPAssn 49		79 1,788	Pleasant View Sanatorium TB County 96 88 75 Ashland, 12,453—Ashland
Mercy Hospital Gen	Church 100		223 1,791	
Dickinson, 5,839—Stark St. Joseph's Hospital Gen	Church 80	46 14	224 1,629	Ashtabula General Hospital ^o Gen NPAssn 74 55 11 312 2,079
Drayton, 688—Pembina Drayton Hospital Gen	Indiv 13	10 4	5G 461	Athens, 7,696—Athens Athens State Hospital Ment State 1,886 1,814 203 Sheltering Arms Hospital Gen Part 41 21 9 143 803
Elbowoods, 175—McLean Fort Berthold Indian Hosp. Gen	IA 25		56 627	Barberton, 24,028—Summit
Fargo, 32,580—Cass				Bedford, 7,390—Cuyahoga
St. John's Hospital+0 Gen St. Luke's Hospital• Gen	Church 195 Church 108	80 17	419 3 093	Bedford Municipal Hospital Gen City 34 27 15 231 1,052  Bellaire 13 799—Belmont
Veterans Admin. Facility. Gen Fort Totten, 100—Benson	Vet 181	148	1,236	City Hospital
Fort Totten Indian Hospital Gen Fort Yates, 1,000—Sioux	IA 37	19 4	51 643	Bellevue Hospital Gen NPAssn 30 No data supplied
Standing Rock Indian Hosp. Gen	IA 47	18 5	70 760	Berea, 6,025—Cuyahoga Community Hospital Gen NPAssn 37 27 10 240 1,122
Grafton, 4,070—Walsh Grafton Deaconess Hospital® Gen	Church 50	41 10	294 1,546	Brecksville, 1,900—Cuyahoga Veterans Admin, Facility A., Gen Vet 269 225 2,308
Grand Forks, 20,228—Grand Forks Grand Forks Deaconess Hos-		<b>50</b> 22	410 0.510	Bryan, 5,404—Williams Cameron Hospitals Gen NPAssn 16 11 5 139 574
pital ^o Gen St. Michael's Hospital ^o Gen	NPAssn 85 Church 65		412 3 516 359 2,444	Bueyrus, 9,727—Crawford Bueyrus City Hospital
Harvey, 1,851—Wells St. Aloisius Hospital Gen	Church 30	20 8	155 1,038	Cambridge, 15,044—Guernsey
Gen	NPAssn 38	23 10	112 1,037	Children and Maternity Hos- pital
for Insanc* Ment	State 1,929	1,920	430	Swan Hospital
Trinity Hospitalo Gen	Church 70	41 12	204 1,656	Canton, 103,401—Stark Aultman Hospital***  Aultman Hospital**
Kenmare, 1,528—Ward Kenmare Deaconess Hospital Gen	Church 33	18 5	113 674	Little Flower Hospital. Unit of Mercy Hospital Mercy Hospital**40 Gen Church 202 181 33 1,606 7,207 Molly Stark Sanatorium TB County 166 139 183
Langdon, 1,546—Cavalier Mercy Hospital Gen	Church 38	25 13	190 1,200	Molly Stark Sanatorium TB County 100 135
Mandan, 6,685—Morton Mandan Deaconess Hospital. Gen	Church 42	21 8	150 1,359	Gibbons Hospital Gen NPAssn 25 10 4 63 637
Mayville, 1,351—Traill Union Hospital Gen	NPAssn 16	9 7	90 359	Chagrin Falls, 2,505—Cuyahoga Windsor Hospital N&M Corp 60 59
McVille, 548—Nelson Community Hospital Gen	Corp 15	6 4	60 306	Chillicothe, 20,129—Ross Chillicothe, Hospital Gen NPAssn 55 34 10 155 1,005
Minot, 16,577—Ward St. Joseph's Hospital	Church 125	66 15	341 2,420	Federal Reformatory Hosp. Inst USPHS 73 35 61
Trinity Hospital**** Gen	Church 169	123 30	518 5,314	Veterans Admin, Facility4 Ment Vet 1,522 1,597
New Rockford, 2,017—Eddy City Hospital	Church 34	16 6	90 550	
Northwood, 1,063—Grand Forks Northwood Deaconess Hosp. Gen	NPAssn 25	18 6	56 301	Christ Hospital*+A0 Gen Church 320 276 57 1,477
Oakes, 1,665—Dickey Mercy Hospital Gen	Church 15	5 5	82 301	Cincinnati General Hos-
Rolette, 460—Rolette Community Hospital Gen	NPAssn 20	8 -4	45 632	pitair
Communes markets	;	Cey to symb	ols and abb	reviations is on page 1071

OHIO	o—c	ontinue	đ					
		유형			22	jo		
	of ice	ont:		nge us	ine	ber 15	50 to	
Hospitals and Sanatoriums	Type Servic	Owner-hip or Control	Beds	Average Census †	Bassinets	Number Births	Suois 3	
Ct A. Cambanlum A			m 75	40 68	щ	ZĦ	< ω 214	
Cincinnati Sanitarium≜ Deaconess Hospital*+≜≎	N&M Gen	Corp Church	175	121	25	708	4 336	
Good Samaritan Hosp *+** Hamilton County Home and	Gen	Church	600	382	90	2,069 1		l
Chronic Disease Hospital Hamilton County Tuberculosi	Chr	County	260	204		•	499	Ì
Hochitai+•	TD	County	583	531			608	
Jewish Hospital*+* Longview State Hospital+*	Gen Ment	NPAssn State	260 2,819	201 2,796	40	911	6 931 561	١
Ohio Hospital for Women and	1	of Bethese	-					
Children St Mary Hospital**	Gen	Church	200	150	29	613	4,737	١
Circleville, 7,982—Pickaway Berger Hospital	Gen	City	25	10	6	127	60G	ĺ
Cleveland, 878 336-Cuy ahoga		-						١
Babies and Childrens Hosp Booth Memorial Home and	Unit	of Univers	sity H	ospitai	ıs			l
Hospital*	Mat	Church	17	18 869	17 50	560 1,176 1	570 2 00~	
City Hospital*+▲◊	Gen TB	City City	1,195 307	347	•	1,110	939	ĺ
City Psychopathic Hospital	Unit	of City H	lospita	.1				l
Cleveland Clinic Foundation Hospital*+▲	Gen	NPAssn	238	200			7,566	l
Cleveland State Hospital	Ment Gen	State Corp	2,421 34	2,572 6	12	1	644 47	ļ
Evangelical Deaconess Hos		_						1
pital▲	Gen TB	Church Church	104 28	128 28	32	1,142	3,515 36	l
Fairview Park Hospital*+A	Gen	Church	136	104	51	1,075	4,403	ı
Glenville Hospital+AO Grace HospitalA John H Lowman Memorial	Gen Gen	NPAssn NPAssn	99 68	95 43	36 12	803 274	3,750 2,079	1
John H Lowman Memorial Pavilion	Unit	of City H	Iospita	1				
Lakeside Hospital	Unit	of Univer	sity E	Iospits	ils			1
Leonard C Hanna House Lutheran Hospital♣≎	Gen	of Univer	109	96	28	887	3,993	1
Maternity Hospital Mt Sinai Hospital***	Unit Gen	of Univer		Hospita 232	als 45	1,091	8 017	ı
Polyclinic Hospital▲	Gen	NPAssn	105		20	596	4 046	١
St Alexis Hospital*+AO St Ann's Maternity Hosp A	Gen Mat	Church Church	220 67	177 58	59	2,992	7,193 2,46‡	١
St John's Hospital+A0 St Juke's Hospital++A0	Gen Gen	Church Church	218 332	181 289	32 65	1,275 1,564	6 873 10,432	
St Vincent Charity Hos			267	219	-	-,	7,286	1
pital*+40	Gen TB	Church Church	28	28			46	١
U S Marine Hospital* University Hospitals***	Gen Gen	USPHS NPAssn		236 579	108	2,766	3 200 18 604	ĺ
University Hospitals*+Ao Woman s Hospital*A Columbus 200 087 Franklin	Gen	NPAssr		80	30	698	3,807	١
Columbus, 306 087—Franklin Children s Hospital+40	Chil	NPAssr		100			2 587	١
Columbus State Hospital* Franklin County Tubereu	Ment	State	2,600	2,547		•	539	1
losis Hospital+▲	TB	County		279			302	١
Dr Gaver Sanitarium Grant Hospital+40	N&V Gen	I Indiv NP \ss:	25 n 271	12 203	40	1,048	100 7,462	
McMillen Sanıtarlum	N&N Gen	I Corp	40	25 ვა	15	147	214 1,672	1
Mercy Hospital▲ Mt Carmel Hospital★▲○	Gen	NPAssr Church	223	190	25	1,200	G 578	
St Ann's Maternity Hosp St Anthony Hospital	▲ Mat Gen	Church Church		20 17°	25	890	931 1,277	
St Francis Hospital*+A0	Gen	State	160	130			3,029	
Starling I oving University Hospital*+*	Gen	State	267	202	35	776	5 848	
Station Hospital* White Cross Hospital*+*	Gen	Army	139	119	3	29	2,163	
Conneaut, 9,350—Ashtabula	Gen	Church	234	205	40	1,522	7,850	
Brown Memorial Hospital Coshocton, 11,509—Coshocton	Gen	NPAssi	n 30	20	8	232	968	
Coshocton City Hospitals	Gen	City	64	33	8	290	1,890	
Covington, 1,945—Miami Covington Hospital	Gen	NPAssi	n 8	3	2	6	<b>7</b> 0	
Crestline, 4,337—Crawford Crestline Finergency Hosp	Gen	NPAssi		10	4		362	
Cuy ahoga Falls, 20,546—Sumn	ıit							
Fair Oaks Villa Sanitarium Dayton, 210 718—Montgomery Dayton State Hospital				52		•	564	,
Good Samaritan Hosp **	Men: Gen	t State Church	1,868 1 219	1,745 208	56	1,774	457 7,190	
Miami Valley Hospital*+* St Ann's Maternity Hosp	Gen Unit	NPAss	n "70	320	44	1,568	10,850	
St Elizabeth Hospital*▲◆	Gen	Church		204			7,881	
Stillwater Sanatorium Deflance, 9,744—Deflance	ав	Counti		98			156	
Dennison, 4,413—Tuscarawas	Gen	NP 4ee	n 35	20	10	254	1,323	
Iwin City Hospital Dover, 9691—Tuscarawas	Gen	NP 199	n 32	18	9	163	2c1	
Union Hospital	Gen	NPAss	n 75	37	10	196	1,203	
Fast Cleveland, 39,495—Cuy ala Huron Road Hospital*+40	oga Gen	NP4ss	n 262	270	G	1.755	11,006	
East Liverpool, 23 500—Colum Fast I iverpool City Hosp	biana		202					
Elyria, 2a 120-Lorain	Gen	City	80	66	15	404	2 470	
E	•							
hairfield o tin_Grans	Gen	NP 199	n 134	80	29	7G7	3,347	
Inirfield, 2549—Greene Station Hospital	Gen	Army	40	) 11	. 2	:	697	
Finding Rospital	Gen	NP 100	n 61	40	12	2 400		
· •						nhois s	•	h

OHIO—Continued												
Hospitals and Sanatoriums	Type of Service	wnership ir Control	Beds	Average Census †	Bussincts	umber of Irths	dmis ons †					
Fremont, 14,710—Sandusky Community Hospital	Gen	05 NPAssn	14	8	គ 4	29 41	₹ <b>3</b> 296					
Memorial Hospital▲ , Gallipolis, 7,832—Gallia Holzer Hospital▲◊	Gen Gen	NPAssn Part	60 54	58 42	15 4	460 100	2,568 1,982					
Ohio Hospital for Epileptics Green Springs 930—Sandusky an Oak Ridge Sanatorium	Epil	State	2,170 76	2,0\$4 57		•	236 132					
Greenville, 7,745—Darke Wayne Hospital	Gen	NP 4ssn	50	20	10	209	999					
Hamilton, 50,592—Butler Fort Hamilton Hospital Vercy Hospital	Gen Gen	NP 45en Church	86 190	ნა 130	24 30	396 753	2 410 4,315					
Hillsboro, 4,713—Highland Hillsboro Hospital Ironton, 15,851—Lawrence	Gen	NPAssn	20	9	4	71	486					
Charles S Gray Deaconess Hospital Lawrence County General	Gen	NP 4ssn	50	26	5	72	680					
Hospital	Gen	County	63	39	12	410	1,840					
kenton, 7,593—Hardın VicKıtrıck Hospital San Antonio Hospital Lacarne, 200—Ottawa	Gen Gen	NP Assn Church	25 27	18 23	5 6	60 89	622 702					
Station Hospital Lakewood, 69,160—Cuyahoga	Gen	Army	28	2			94					
Lakewood Hospital▲ I ebanon, 3 890—Warren	Gen	City	137	91	98	763	3 940					
Blair Brothers Hospital Lima, 44,711—Allen	Gen	Part	8	6	3	70	330					
District Tuberculosis Hosp Lima Memorial Hospital*	TB Gen	Counties NPAssn	125 124	118 104	21	639	126 4,5°5					
I ima State Hospital St Rita's Hospital*≎	Ment Gen	State Church	1,076 120	1,140 85	20	491	170 2 950					
Lodi, 1,304—Medina Lodi Hospital	Gen	NPAssn	40	22	9	306	1,246					
Logan, 6 177—Hocking Cherrington Hospital	Gen	NPAssn	35	11	5	47	396					
Loram, 44,125—Loram St Joseph's Hospital Macedonia, 734—Summit	Gen	Church	100	76	20	722	3 471					
Hawthornden State Hosp Mansfield, 37,154—Richland	Ment	State	1,069	873		•	318					
Mansfield General Hosp +40 Richland County Tuberculos		NP 4sen	153	128	30	977	4 509					
Sanatorium Marietta 14 543—Washington Marietta Mamorial Hospital	TB	County	29	24	••		27					
Marietta Memorial Hospital Marion, 30 817—Marion Marion City Hospital	Gen	NPAssn City	53 50	33 44	10 10	337 ნა1	1,350 2,830					
Sawyer Sanatorium Martins Ferry, 14,729—Belmont Martins Ferry Hospital	N&M Gen	Part NPAssn	50 95	26 85	• 15	499	81 3,353					
	Gen Ment	NPAssn State	107 3,395	76	14	627	3 2So 875					
	1B	Corp	150	3,393 134		•	138					
Dellhurst Sanitarium	изи	Corp	40	N	o di	ita suj						
Middletown, 31 220—Butler Middletown Hospital*• Millersburg 2,2.9—Holmes Holmes County Joel Pomerer	Gen	NPAssn	146	99	28	807	3 869					
Holmes County Joel Pomerer Memorial Hospital Mt Vernon 10,122—Knov	e Gen	County	27	15	5	158	756					
Avalon Sanatorium . Mercy Hospital	TB Gen	Indiv Church	103 65	70	10	:	134					
Mt Vernon Hospital Sanit Ohio State Sanatorium	Gen I B	NPAssn State	40 240	33 24 191	10 10	351 11ə	2,643 1,058					
Munroe Falls, 511—Summit Summit County Hospital	Inst	County	150	140	•		327 294					
Napoleon, 4 825—Henry S V Heller Memorial Hosp		City	15	10	4	112	679					
National Military Home,Mor Veterans Admin Facility	tgomer Gen	У	1,050	909	•		5 660					
Newark, 31,487—Licking Licking County Tuberculos: Sanatorium	s TB	Counts										
Newark Hospitalso New London, 1,656—Huron	Gen	County NPAsen	57 100	38 74	21	538	60 2 6°6					
New London Hospital New Philadelphia, 12 328—Tusca	Gen Irawas	NPAssn	9	4	3	30	168					
Austrawas Valley Sanat North Royalton (Breeksville P Mount Royal Sanatorium	TB O]), 2 5.	County 9—Cuy al:	ეა ioga	30		• •	41					
Norwalk, 8.211—Huron		NPAssn		108	•	030	109					
Oberlin 4 30.—I orain Allen Hospital, Oberlin College	Gen	MPAssn	28	20	7	228	203					
Oxford 27:56—Butler Minml University Student Hospital			37	25	5	133	1,408					
Painesville, 12 2 Lake I ake County Memorial	Inst	State	40	17	•	•	1,527					
Hospital Perrysburg, 3,457—Wood Compunity Hospital	Gen	County	70	77	14	593	4 193					
Community Hospital Rheinfrank Hospital Plqua, 16 049—Miami	Gen Goiter	Indiv Indiv	13 12	6	3	57	201 23)					
Memorial Hospital	Gen	NPAssn	77	57	12	419	2 016					

ОНІС	00	ontinue	đ					OHIO—Continued		,	
	<b>.</b>	hlp rrol		<b>سب</b> ہ رہے	t3	10		ge.		ų	
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admís- sions (	Belated Institutions or Control of Average Control Con	Bassinets	Number of Births	Admis- sfons †
Port Clinton, 4,505—Ottawa H. B. Magruder Memorial		00	Ħ	ΨO	F	ZA,	4.0	Cincinnati, 455,610—Hamilton	Ba	NA NA	Adu
Hospital Portsmouth, 40,466—Scioto Mercy Hospital		NPAssn	38		10	154	856	Catherine Booth Home and Hospital	45	200	206
Schirman Hospital	Gen	Church City NPAssn	66 90 50	58 59 26	9 10 5	293 418 59	2,398 2,625 863	of the Cincinnati Orphan Asylum Inst NPAssn 100 78 Children's Home Inst NPAssn 30			262
Ravenna, 8,538—Portage Robinson Memorial Portage County Hospital	Gen	County	60	53	11	479	1,882	Jewish Convalescent and 69 69	••	•••	497 8
St. Clairsville, 2,797—Belmont Belmont Sanatorium Salem, 12,301—Columbiana		County	56			• • •	53	Foster Homes		288	153 413
Central Clinic and Hospital Salem City Hospital	Gen Gen	NPAssn NPAssn	32 60	27 43	6 10	134 327	1,058 1,371	Ridge Rest Home N&M Corp 30 24 St. Francis Hospital ChrCancer Church 290 230 St. Joseph Maternity Hospital			30 493
Sandusky, 24,874—Ērie Good Samaritan Hospital Providence Hospital	Gen Gen	NPAssn Church	51 50	30 39	9 15	210			10	73	80
Shelby, 6,643—Richland Shelby Memorial Hospital Sidney, 9,700—Shelby		NPAssn	33	19		186	898	and Hospital	iż	26	200 23
Wilson Memorial Hospital South Euclid, 6,146—Cuyahoga		NPAssn	38	23	12	242	997	Ingleside Home	 24	 78	200 DS
Rainbow Hospital for Crippled and Convalescent Chil-		f Universi	ity H	lospità	ıls,	Clevel	and	Franklin County Home Inst County 125 120 Institution for Feebleminded MeDe State 2,123 2,101 Ohio Penitentiary Hospital. Inst State 185 114 Dayton, 210,718-Montgomery		::: 1	132 162 5,161
Sanatorium	TB Gen	County City	120 228	102	ii	1,179	118 5.735	Barney Convalescent Home for Crippled Children Orth NPAssn 30 20	.,		100
Steubenville, 37,651—Jefferson Gill Memorial Hospital	Gел	Church	25	17			919	Wilson Schools	••	•••	40
Ohio Valley Hospital Tiffin, 16,102—Senera Mercy Hospital		NPAssn Church	164 37	140 32		1,10S 27I	1,520	Inst State 32 8	••	•••	293
Toledo, 282,349—Lucas East Side Hospital	Gen	NPAssn	41	17	4	46	619	selli Home for Crippled Children			14
Flower Hospital*  Lucas County General Hospital*		Church County	130 292	98 178	35 33		3,852 3,971	Granville, 1,502-Licking Denison University Hospital Inst Orcenfield, 4,222-Highland Greenfield Hospital Greenfield Hospital Greenfield Hospital Lorenties (1,10) Februard	••	•••	359 81
Mercy Hospital**	Gen Gen	Church Church	222 98	138 44	50 13	830 252	5,144 1,909	Boys' Industrial School Hos-	••	***	
St. Vincent's Hospital**  Toledo Hospital*  Toledo State Hospital*	Gen	Church NPAssn State 2	301 270 2,902		45 50	1,169	8,792 7,958 668	pital	••	•••	622 40
William W. Roche Memorial Tuberculosis Hospital	TB	County	166				203	Marysville, 4,037—Union Harmon Hospital (Ohio Re-			190
Women's and Children's Hos- pital**		NPAssn	116	86	26	702	3,277	Orient, 175-Pickaway		_	210
Stouder Memorial Hospital	_	NPAssn	41	40	8		1,706	Reynoldsburg, 652—Franklin Nightingale Cottage TbChil NPAssn 40 36			54
Champaign County Hospital ( Van Wert, 9,227—Van Wert Van Wert County Hospital. (	_	County	35 44	20 27	8 6	183 170	722 1,103	Springfield, 70,662—Clark Rickly Memorial Hospital Inst NPAssn 280 245 State Soldiers Home, 900—Eric	•		203
Wadsworth, 6,495-Medina Wadsworth Municipal Hosp.	_	City	37	29		243	962	Ohio Soldiers and Sailors Home Hospital	,		761
Warren, 42,837—Trumbull St. Joseph's Riverside Hosp. (Trumbull County Tuberculosis		Church	50	<b>6</b> G	10	597	3,437	Kentucky Memorial Hosp Inst NPAssn 50 7 Toledo, 282,349—Lucas Lucas County Hosp. Annex Chr County 112 110		••	510 53
Sanatorium	TB	County NPAssn	48 117		29	920	77 4,513	Toledo Society for Crippled Children Convalescent			92
·r-	тв	City	435	430			384	Home A Orth NPAssn 74 42 Warren, 42,837—Trumbull Elm Manor Alcoh Indiv 8 2			41
Wauseon, 3.016—Fulton De Ette Harrison Detwiler	O	NID A con	53	38	7	194	1,581	Inst City 170 161 .			277 31
Memorial Hospital (Willard, 4,261—Huron		NPAssn City	30	20	6	84	941	N&M Corp 65 25 N&M Corp 15 7	: :		46
1	Gen	Indiv	17	5	7	26	243	Inst NPAssn 25 4 .	• ••	,	107
Wooster, 11.543-Wayne		NPAssn	22	12	6	143	619	Ohio Soldiers' and Sallors' Orphans' Home Hospital. Inst State 63 20 Yellow Springs, 1,640—Greene Inst NPAssa 10 5			99 55
Kinney Memorial Emergency Hospital Wooster Hospital	Gen	NPAssn NPAssn	25 25	No 12	da 6	ta sup	plied 475	Antioch College Infirmary Inst NPAssn 10 5 · Youngstown, 167,720—Mahoning Youngstown Municipal Hosp. Iso City 50 4 ·	. <i>.</i> .		5)
Tranklin		Corp	50	42	••		283	OKLAHOMA			
McClellan Hospitala	Gen	Corp	20	15	4	76	602		10 10	. 4.	-
	TB Gen Gen	Church	180 285 515	158 261 389	50 69	1,798 2,016 1	190 9,580 4,138	Service Ownershin or Control  Average Control  Beds  Average Control  Breathroom Contr	Number	Admis-	
Good Samaritan Hospitalo	Gen Gen		110 120	80 80	20 25	541 533	3,882 2,524	Gen NPAssn 25 8 2 Gen NPAssn 50 23 10		97. 1,617	
Related Institutions Akron, 244,791—Summit Goodyear Hospital and Dis-				_				Altus, 8.503—Jackson Altus Hospital	15 221		
pensary Wayna			20 610	8 59S	••		2,603 71	Alva General Hospital Gen Chy Anadarko, 5,579—Caddo	63	\$37	
Apple Greek, 510—17 Apple Institution for Feebleminded ! Bellefontnine, 9,808—Logan Harbert Hospital		State Indiv	610 4	1			120	Anadarko Hospital Gen Part Ardmore, 16,856—Carter Hardy Sanitarium Gen Indiv 45 23 8	194 22	1,217 220	
Blufiton, 2,077—Allen Blufiton Community Hosp		NPAssn	22		6	123	603	von Keller Hosp, and Clinic. Gen NPAssn 25 6 7 ylations is on page 1071			
			Κc	y to sy	ymb	ois an	n Yout	STORMOGO AN BERT			

OKLAHO	MA-	-Conti	nued	l		OKLAHOMA—Continued						
		Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †	Type of Service Ownership or Control  Average Control  Beds  Average Control  Brasinets  Number of Births	Admis- sions †			
Bartlesville, 16,267—Washington Washington County Memorial	ES (	Q 8	Ă					Muskogee, 32,332—Muskogee Muskogee Provident Hosp Gen CyCo 18 5 1 22	180 1,875			
Hospital	_	County Part	55 20	28 8	13 3	331 92	1,439 526	Veterans Admin. Facility 1. Gen Vet 291 245 TB Vet 48 40	2,195 99			
Blackwell, 8,537—Kay Blackwell General Hospital ( Bristow, 6,050—Creek		NPAssn	37	23	6		1,038		1,072 1,326			
Cowart-Sisler Hospital ( Carnegie, 1,740—Caddo	ien I	Part	17	5	5	71	498	Okeene, 1,079—Blaine	248			
Carnegie Hosp. and Clinic. C Cherokee, 2,553—Alfalfa	Sen (	Corp	12	7	5	135	485	Okemah, 3,811-Okfuskee	388			
Masonic Hospital	Gen 1	NPAssn	40	3	10	94	935	Clinic Hospital	303			
Chickasha Hospitalo (Cottage Hospital		Part Indiv	50 10	25 10	4 5	96 38	1,108 486	Bone and Joint Hospital and McBride Clinic+4 Orth Corp 41 18	649			
General Hospital	en 3	NPAssn IA	19 80	8 68	5 18	51 237	818 1,736	Coyne Campbell Sanitarium. N&M Corp 75 47 Great Western Hospital Gen Corp 35 21 2 6 Moorman's Farm Sanat TB Indiv 25 8	596 221 81			
Clinton, 6,736—Custer		[A	32	18	5	40	594		3,582			
Clinton Indian Hospital Western Oklahoma Charity Hospital		State	100	80	6	217	2,326	Polyclinic Hospital Gen Indiv 99 56 15 297 15 St. Anthony Hospital*+A0 Gen Church 350 307 50 1,705 1				
Western Oklahoma Tubercu- losis Sanatorium		State	293			•••	382	Samaritan Hospital Gen Indiv 44 26 8 170 1 University Hospitals*+40 GenOr State 383 364 20 695 6	1,068 6,229 4,827			
Concho, 290—Canadian Cheyenne and Arapaho Hos-	٠ 1	IA	46	30	8	73	798	Okmulgec, 16,051—Okmulgee Ming-Vernon Hospital Gen Part 12 8 2 23	363			
pital ^A Cordell, 2,776—Washita	. 1	Indiv	30	3	7	49	209	Okmulgee City HospitalGen City 35 14 6 167 Pauls Valley, 5,104—Garvin	820			
Florence Hospital		NPAssn	30	19	6	106	862	Lindsey-Johnson-Shirley Hospital	674			
Duncan, 9,207—Stephens Patterson Hospital Weedn Hospital		Indiv Indiv	30 50	8 19	5 8	97 81	617 816	Osage County Infirmary Gen County 40 7 174 Pawhuska Municipal Hosp Gen City 40 8 5 72	846 493			
Durant, 10,027—Bryan Durant Hospital		Corp	25	12	4	81	826	Pawnee, 2,742—Pawnee Pawnee-Ponca Hospital Gen IA 50 27 6 80	719			
Evergreen Sanitarium		Indiv Part	21 11	5 10	6 2	59 79	255 485	Picher, 5,848—Ottawa American Hospital Gen Indiv 40 5 3 4	293			
Elk City, 5,021—Beckham Tisdal Hospital El Reno, 10,078—Canadian	Gen :	Indiv	35	8	3	44	503	Picher Hospital	535			
Catto Hospital		Indir Indiv	19 35	6 15	3 6	34 163	203 921	Poteau, 4,020—Le Flore	2,310			
Federal Reformatory Enid, 28,081—Garfield		USPHS	66	26		•••	629	Prague, 1,422—Lincoln	200			
Enid General Hospitalo Independence Hospital		NPAssn NPAssn	78 14	60 6	10 4	148 47	1,854 367	Rollins Hospital Gen Indiv 10 4 3 70  Sayre, 3,037—Beckbam  Sayre Hospital Gen Indiv 20 7 6 113	354 620			
St. Mary's Enid Springs Hos- pital*		Church	75	26	12	306	1,496	Seminole, 11,547—Seminole Harber Hospital				
University Hospital Founda-		NPAssn	63	35	10	267	1,841	Shattuck, 1,275—Ellis				
Erick, 1,591—Beckham Stagner Clinic and Hosp	Gen	Indiv	12	7	4	25	150	Shawnee, 22,053-Pottawatomie	1,324			
Fairfax, 2,327—Osage Fairfax Hospital	Gen	Indiv	10	3	3	34	270	A. C. H. Hospital ^A Gen Part 25 14 5 143 Shawnee Indian Sanat. ^A TB IA 150 103 Shawnee Municipal Hospital ^A Gen City 59 22 6 244	732 139			
Fort Sill, —Comanche Station Hospital	Gen	Army	557	271	10	139	9,238	Stillwater, 10,097—Payne	1,561			
Frederick, 5,109—Tillman Frederick Clinic Hospital		Part	20	7	3	111	464		1,603			
Spurgeon, Arrington and Aller Hospital and Clinic	i Gen	Corp	16	б	4	100	556	Sulphur, 4,970-Murray	-			
Grandfield, 1,116—Tillman Grandfield Hospital	Gen	Indiv	10	3	4	75	150	Gen State 58 57	188 733			
Guthrie, 10,018—Logan Cimarron Valley Wesley Hos-								Supply, 414-Woodward	384			
pital Henryetta, 6,905—Okmulgee Henryetta Hospital		NPAssn Indiv	35 o=	18	5 2	122 102	830 988	Western Oklahoma Hospital Ment State 1,500 1,486 Taft, 772—Muskogee State Hospital for Negro In-	497			
John Taylor Hospital Hobart, 5,177—Klowa General Hospital	Gen	Indiv	25 18	14	3	50	G00	sane	340			
Manart Hagaital	Clark	Indiv Corp	22 31	9 17		201 122	-	Win. W. Hastings Indian	1,314			
Holdenville, 6,632—Hughes Holdenville Hospital Pryor-Johnston-Kernek Clinic	Gen	Indiv	30	15		33	678	Eastern Oklahoma State Tuberculosis Sanatorium TB State 370 350	610			
and Hospital  Hollis, 2,732—Harmon  Hollis Hospital		Part	12	10		132	496		1,784			
Hominy, 3,267—Osage Hominy Hospital		Indiv Indiv	15 28	5 2		65 48	440 274	TB IA 100 81	162			
Hugo, 5,900—Choctaw Johnson Hospital		Indiv	9	3		73		Tonkawa Hospital Gen Indiv 20 3 4 29 Tulsa, 142,157—Tulsa	153			
Lawton, 18,055—Comanche Angus Hospital	Gen	Part	16	s	7	201	527	Flower Hospital	953 5,430			
Kiowa Indian Hospital	Gen TB	IA IA Corp	145 31 32	26	17 10	208	132	Children+ Orth Indiv 54 18 Oakwood Sanitarium N&M Corp 40 15	962 178			
Southwestern Clinic Hospital Mangum, 4,193—Greer Border Hospital and Clinic.	_	Corp	32 25	18		67	1,124	St. John's Hospital*Ao Gen Church 215 187 35 1,073 7 Vinita, 5,685—Craig	7,738			
Maud Hospital	Gen	Indiv	18	2	2	47		Eastern Oklahoma Hospital Ment State 2,609 2,621	599 551			
Border Hospital and Clinic. Maud, 2,636—Seminole Maud Hospital McAlester, 12,401—Pittsburg Albert Pike Hospital Central Oklahoma State Ho	Gen	Indiv	63	2	So d	ata su	pplied	Waurika Hospital Gen Corp 24 12 5 57  Wewoka, 10,315—Seminole	431			
pital Annex St. Mary's Hospital Minml, 8,345—Ottawa	MeDe Gen	State Church	250 55	249 11		87	220 546	Kalish Hospital Gen Corp 20 8 4 77 Wewoka Hospital Gen Part 25 8 4 31	369 305			
Miami, 8,345—Ottawa Miami Baptist Hospital	Gen	Church	40	10		105		Woodward, 5,400-Woodward Memorial Hospital Gen Corp 25 15 4 228 1				
				A					,			

							March 28, 1942
OKLAHO		tinue	ed				OREGON—Continued
•	trol		e) +	. 2	r of		7 og 0
Related Institutions	Service Ownership or Control	5	Average Census t	Bassinets	Number of Births	nis-	Beds Average Control Bassinets Bussinets Bussinets Average Control Bussinets Admis- elons f-
Chelsea, 1,642—Rogers	Ser	Beds	Ave	Bas	Nur	Admis- sions †	Hospitals and Sanatoriums  Beds  Bassinet  Bussinet  Average  Continue  Bussinet  Admiss  Admi
Jennings Hospital G	n Indiv	5		1 1			Pendieton, 8,847—Umatilla
Chilocco, 80-Kay Chilocco Indian School Hosp. In	st IA	47		1 .,			pital Ment State 1,350 1,256 203
Enid, 28,081—Garfield Northern Oklahoma Hosp., M		-					Portland, 305,394—Multnomah
Fort Reno (El Reno P.O.), 150-Ca Station Hospital G	nadion		1,13		•••		Doernbecher Memorial Hospital
McAlester, 12,401—Pittsburg	en Army	14		ı	• • •	. 85	School Hospitals and Clinics
Oklahoma State Prison HospitalIr	st State	40	2:	2	•	. 797	Emanuel Hospital*+A0 Gen Church 283 262 60 2,052 8,464 Good Samaritan Hosp.*+A0 Gen Church 310 227 36 1,057 9,010
Okemah, 3,811—Okfuskee Okemah Hospital G		12		5 2			Juvenila Hospital Gen RPAssn 75 40 10 89 1,484
Oklahoma City, 204,424—Oklahom Campbell Tuberculosis Sanit, T	1	27			. 0.		Morningside Hospital Ment Fed 325 307 01 Multnomah Hospital Unit of University of Oregon Medical School Hospitals and Clinice
Home of Redeeming Love., M Tahlequah, 3,027—Cherokee	at Church	22	20	30	170	. 87 ) 214	Portland Convalescent Hosp, Med Indiv 25 12 136
Sequoyah Orphan Training	_4 74						Portland Medical Hospital Gen Corp 57 22 485 Portland Sanitarium and
School Hospital In Tulsa, 142,157—Tulsa		19	8	3	•••	440	Hospital*Ao Gen Church 130 117 31 1,108 5,773 Unit of St. Vincent's Hospital
Tulsa General Hospital General Tulsa Junior League Home	n Corp	65		No d	ata su	pplied	Gen Church 380 327 37 971 10,345
for Convalescent Crippled Children O	th NPAssn	30	27	·		92	Home
Watonga, 2,828—Blaine Watonga Hospital Ge		12	2.		55		pled Children A Orth NPAssn 60 52 349 Theo. B. Wilcox Memorial
Wynne Wood, 2,318—Garvin				_			Hospital
Wynnewood Hospital Clinic. Go	n Part	7	4	3	55	212	School Hospitals and
OI	REGON						University State Tuberculosis
	ō.			nn	ţ,		Hospital. Unit of University of Oregon Medical School Hospitals and Clinics
0	Service Ownership or Control		Average Census †	Bassinets	ber	<u></u>	Veterans Admin. Facility Gen Vet 407 348 2,732 Prineville, 2,358—Crook
Hospitals and Sanatoriums	Servic Owner or Co	Beds	ens Jens	ass	Number Births	Admis- sions †	Princylle General Hospital Gen Indiv 25 14 6 129 894 Roseburg, 4,924—Douglas
Albany, 5,654—Linn	<i>a</i> 00	щ	₹O	-			Mercy Hospital
Albany General Hospital Ge Ashland, 4,744—Jackson	n NPAssn	52	21	8	157	1,078	St. Helens, 4,304—Columbia St. Helens General Hospital. Gen Corp 19 7 6 51 654
Community Hospital Ge Astoria, 10,389—Clatsop	n Indiv	23	10	7	89	610	Salem, 30,908—Marion Oregon State Hospital+4 Ment State 2,800 2,652 929
Columbia Hospital Ge St. Mary's Hospital Ge	n Church n Church	91 100		12 10	221 183	2,288 3,303	Oregon State Tuberculosis
Baker, 9,342—Baker					292	-	Salem Deaconess Hospital Gen Church 100 74 16 419 3,278
St. Elizabeth Hospitalo Go Bend, 10,021—Deschutes		85		16		-	Salem General Hospital Gen NPAssn 74 55 18 434 2,680 Silverton, 2,935—Marion
St. Charles Hospital Ge Burns, 2,566—Harney		45		10		•	Silverton General Hospital. Gen NPAssn 20 12 9 185 509 The Dalles, 6,266—Wasco
Valley View Hospital Ge Corvallis, 8,392—Benton	n Indiv	18	10	4	46	513	Eastern Oregon State Tuber- culosis Hospital TB State 180 176 123
Ball Clinic Ge Corvallis General Hospital. Ge	n Indiv n NPAssn	17 38	10 16		48 176	366 693	Mid-Columbia Hospital Gen Indiv 22 12 6 38 668   The Dalles Hospitalo Gen Corp 75 32 12 289 1,419
Student Health Service, Oregon State College In		30				849	Tillamook, 2,751—Tillamook Charlton Hospital Gen Indiv 35 21 8 118 1,945
Dallas, 3.579—Polk	_	25	13	4	71	446	Toledo, 2,288—Lincoln Lincoln Hospital
Dallas Hospital Ge Enterprise, 1,709—Wallowa	-				51	301	Troutdale, 211—Multnomah Multnomah County Tubercu-
Enterprise Hospital Ge Eugene, 20,838—Lane		14	5				losis Pavilion TB County 41 29
Eugene Hospital and Clinic Ge Sacred Heart General Hosp. Ge	n Part n Church	55 94	44 73	3 26	1,018	1,842 3,363	Warm Springs, 150—Jefferson Warm Springs Hospital Gen IA 23 10 6 15 396
Grants Pass, 6,028—Josephine							Related Institutions
Hospital	n County	54	29	12	164	1,376	Chemawa 700—Marion Chemawa Indian Hospital Gen IA 49 14 3 18 797
Hood River, 3,280—Hood River Hood River Hospital Ge	n NPAssn	38	23	5	97	1,520	Coquille, 3,327—Coos Coquille Hospital Gen Indiv 27 No data supplied
Klamath Agency, 150—Klamath Klamath Indian Hospital Ge	n IA	27	12	5	49	464	P Iso City 85 10 203
▲ Ge	a Corp	50 77	35 35	$\frac{12}{14}$	415 358	2,108 1,766	Shield
La Grande, 7,747—Union					133	824	Salem, 30,908—Marion Oregon Fairview Home MeDe State 1,103 1,021 123
St. Joseph Hospital		45		13			Oregon State Penitentiary Hospital
Lakeview Hospital Ge.	1 Corp	20	7	4	47	465	Oregon State School for the Deaf
Lebanon, 2,729—Linn Lebanon General Hospital Ge	1 NPAssn	28	20	6	301	1,289	Waldport, 680—Lincoln Waldport Community Hosp. Gen Indiv 10 2 4 27 31
Marshfield, 5,259—Coos McAuley Hospital Ge	n Church	45	30	10	175	1,403	
Ger	Corp	33 38	12 35	6 7	50 216	465 1,823	PENNSYLVANIA
Medford, 11,281—Jackson			50			1,813	Manage of Service Ownership or Control Deds  Average Consus t Bassinets  Number of Bitths  Admiss
Sacred Heart Hospital Ge		75					Mype of Service Ownership or Control  Beds Average Census # Bassinets Number of Bitths Admil*
Portland Open Air Sanat 12		40		••	***	110	
Mast Hospital	n Indiv	40	15	6	71	701	Abington, 3,200—Montgomery Abington Memorial Hos-
Newberg, 2,960—Yamhill Willamette Hospital Ger	Corp	20	8	4	74		pital*440
North Bend, 4,262—Coos Keizer Brothers Hospital Ger	Part	60	37	7		1,351	Ment State 1,8% 1,672 ;; 171
Ontario, 3,551—Malheur Holy Rosary Hospital Ger	_	45	27	12	107	937	Sacred Heart Hospital*+40. Gen Church 294 214 41 959 5,767
Oregon City, 6,124—Clackamas	Indiv	31 53	14 46	7 10	141 267	572 1,233	Allenwood, 400—Union Devitt's Camp
Oregon City Hospital Ger	Corp						viations is on page 1071
		,					

PENNSYLVANIA—Continued													
					ts	, of							
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets .	Number Births	Admis- sions †						
Altoona, 80,214—Blair Altoona Hospital** Mercy Hospital**  G		NPAssn NPAssn	159 147	104 102	21 33	676 737	3,204 3,511						
Ambler, 3,953—Montgomery Dufur Hospital	1&M	Indiv	65	40			92						
Ashland, 7,045—Schuylkill Ashland State Hospital	len	State	173	134	20	548	4,188						
Aspinwall (Sharpsburg P.O.), 4,77 Veterans Admin. Facility	en	Vet	667	558	••	•••	4,303 203						
Beaver Falls, 17,098—Beaver Providence Hospital •	CB	Vet NPAssn	93 53	91 49	13	342	1,706						
Bedford, 3,268—Bedford Timmins' Hospital		Indiv	21	5	4	33	185						
Bellefonte, 5,304—Centre Centre County Hospital		NPAssn	53	51	16	433	1,485						
Bellevue, 10,488—Allegheny Suburban General Hosp. 40 (		NPAssn	100	71	22	396	2,648						
Berwick, 13,181—Columbia Berwick Hospital		NPAssn	63	38	12	328	1,231						
Bethlehem, 58,490—Northampton St. Luke's Hospital*+40	Gen	NPAssn	243	158	35	798	5,118						
Bloomsburg, 9,799—Columbia Bloomsburg Hospital▲ (	Gen	NPAssn	117	71	18	433	2,373						
Blossburg State Hospital	Gen	State	90	93	9	304	2,367						
Braddock, 18,326—Allegheny Braddock General Hosp.**A. ( Bradford, 17,691—McKean	Gen	NPAssn	133	104	42	1,014	3,752						
Bradford Hospital ◆ ( Brookville, 4,397—Jefferson	Gen	NPAssn	111	66	27	468	2,580						
Brookville Hospital	Gen	NPAssn	38	27	7	101	891						
Brownsville General Hosp. 400 Bryn Mawr, 10,206—Montgomery		NPAssn	90	58	10	256	1,861						
Bryn Mawr Hospital*+▲○ Butler, 24,477—Butler	Gen	Corp	235	167	29	764	4,875						
Butler County Memorial Hospital Canonsburg, 12,599—Washington	Gen 1	NPAssn	148	101	24	595	4,248						
Canonsburg General Hos- pital*	Gen	NPAssn	72	55	18	481	2,617						
Carbondale, 19,371—Lackawanna Carbondale General Hosp. A St. Joseph's Hospital	Gen	NPAssn Church	69 88	43 58	14 10	247 202	1,793 1,552						
Carlisle, 13,984—Cumberland Carlisle Hospital Station Hospital Chembersham 14,563	Gen Gen	NPAssn Army	77 60	57 53	18 2	377 26	2,214 792						
Chambersburg, 14,852—Franklin Chambersburg Hospital Chester, 59,285—Delaware	Gen	NPAssn	90	60	12	332	2,300						
Chester Hospital**  J. Lewis Crozer Homeopathic	Gen e	NPAssn	215	170	33	947	5,682						
Hospital Go Clarks Summit, 2,691—Lackawa Hillside Home and Hospital	enIncu	r NPAssn	85	63	20	505	2,318						
for Mental Diseases Clearfield, 9,372—Clearfield	Ment	County	950	1,001	••	•••	220						
Clearfield Hospital ◆ Clifton Heights, 4,921—Delaware	•	NPAssn	108	72	18	310	2,665						
Burn Brae Hospital Coaldale, 6,163—Schuylkill Coaldale State Hospital	N&M	Indiv	45	40	••	•••	79						
Clement Atkinson Memorial		State	120	89	18	318	2,327						
Coatesville Hospital Veterans Admin. Facility.	Gen Gen Ment	Indiv NPAssn Vet	17 87 1,513	9 66 1,515	3 11	32 335	158 1,916 235						
Columbia, 11,547—Lancaster Columbia Hospital		NPAssn	45	24	10	182	858						
Confluence, 1,035—Somerset Price Hospital Connellsville, 13,608—Fayette	Gen	Indiv	13	3	4	29	125						
Connellsville State Hosp. A. Corry, 6,935—Erie	Gen	State	97	65	15	373	1,980						
Coudersport, 3.197—Potter	Gen	NPAssn	40	25	8	260	1,541						
Coudersport General Hosp Cresson, 2,500—Cambria Pennsylvania State Tubercu- losis Sanatorium No. 2		NPAssn	25	15	5	134	<b>G</b> 55						
Danvine, 7,122—Montour		State	840	787	••	•••	828						
Danville State Hospital+Ao. Geo. F. Geisinger Memorial Hospital*+Ao	_	State NPAssn	2,346 154	2,088 128	20	513	512 5,381						
Darby, 10,334—Delaware Fitzgerald-Mercy Hospital*A		Church	193	183	60	1,332	5,126						
Dixmont, 225—Allegheny Dixmont Hospital Doylestown, 4 976—Bucks	N&M	NPAssn	1,000	1,149			83						
Doylestown, 4,976—Bucks	N&M	Indiv	25	15	••	•••	40						
D	Gen	NPAssn	71	53	14	418	2,245						
Du Bois Hospital  Maple Avenue Hospital  Engleville, 500-Montgomery  Furleville Sanatorium for	Gen Gen	Church NPAssn	51 73	38 38	11	226 161	1,336 1,444						
Engleville Sanatorium for Consumptives+	TB	NPAssn	188	175			215						

## PENNSYLVANIA-Continued

PENNSYLVANIA—Continued													
		o io			TO.	o							
	<b>5</b> 93	Ownership or Control		Average Census †	Bassinets	Number Births	<u>.</u>						
Hospitals and Sanatoriums	Type of Service	နိုင်	Beds	ver	ussi	藍	Admis sions						
Factor 22 500 Northampton		09	ñ	άŎ	П	ZĦ	∧ is						
Easton, 33,559—Northampton Betts Hospital Easton Hospital** Easton Sanitarium East Stroudsburg, 6,404—Monroe General Hospital of Monroe	Gen	NPAssn NPAssn	39	28	14	301	1,118						
Easton Hospital**  Easton Sanitarium	Gen N&M	NPASSN Indiv	199 30	150 16	21	634	5,786 40						
East Stroudsburg, 6,404—Monro	e												
General Hospital of Monroe	Gen	NPAssn	65	42	12	211	1,314						
County Lancaster Elizabethtown, 4,315—Lancaster Philadelphia Freemasons' Me-													
mona mospital masome		NPAssn	165	145			547						
Homes	Gen				••	•••							
Children 14 Ellwood City, 12,329—Lawrence Ellwood City Hospital	Orth	State	225	169	••	•••	234						
Ellwood City Hospital	Gen	NPAssn	52	35	18	265	1,435						
Elwyn, 200—Delaware Elwyn Training School Eric, 116,955—Eric		NPAssn	1,090	1,020			71						
Erie County Puberculosis													
Hospital	TB Can	County	$\frac{65}{224}$	62 192	ii	925	120 5,906						
Hospital  Hamot Hospital*  St. Vincent's Hospital*  St. Van Jon Hospital for Crip.	Gen	NPAssn NPAssn	261	256	73	1,635	9,202						
Zem Zem Hospital for Crip- pled Children		NPAssn	48	37			52						
Everett, 2,425—Bedford	_												
Everett Hospital Franklin, 9,948—Venango	Gen	NPAssn	25	14	5	79	574						
Franklin Hospital	Gen	NPAssn	51	33	10	218	1,312						
Gettysburg, 5,916—Adams Annie M. Warner Hospital.	Gen	NPAssn	56	34	9	224	1,374						
Gladwyne, 1,236—Montgomery		To die	co	70			190						
Gladwyne Colony Greensburg, 16,743—Westmorelan	nd nd	Indiv	83	78	••	• • • •	136						
Westmoreland Hospital▲	Gen	NPAssn	170	136	30	864	4,992						
Greenville, 8,149—Mercer Greenville Hospital	Gen	NPAssn	76	27	14	285	1,425						
Grove City, 6,296—Mercer Grove City Hospital	Gen	NPAssn	26	12	6	85	374						
Hamburg, 3,717—Berks Pennsylvania State Sanator-	Gen	212 230011	20	1~	٠	ÇŪ	312						
Pennsylvania State Sanator- ium for Tuberculosis	тВ	State	626	567			519						
Hanover, 13,076—York	_												
Hanover General Hospital▲. Harrisburg, 83,893—Dauphin	Gen	NPAssn	80	46	18	426	1,629						
Harrisburg Hospital*▲	Gen	NPAssn	239	204	25	1,062	5,988						
Harrisburg Polyclinic Hos- pital*▲○	Gen	NPAssn	160	117	20	855	4,132						
Harrisburg State Hosp.+4	Ment	State Indiv	2,150 27	2,155 20	••	100	406						
Keystone Hospital Hazleton, 38,009—Luzerne		Indiv	21	-0	'	109	537						
Corrigan Hospital Hazleton State Hospital	Mat Gen	Corp State	18 143	138	16 18	602	543 5,476						
Hollidaysburg, 5,910—Blair					•0	002							
Hollidaysburg State Hosp Homestead, 19,041—Allegheny		State	375	357	••	•••	140						
Homestead Hospital▲◇	Gen	NPAssn	125	110	25	453	2,796						
Honesdale, 5,687—Wayne Wayne County Memorial													
Huntingdon, 7,170—Huntingdon	Gen	NPAssn	33	22	7	147	892						
J. C. Blair Memorial Hosp.	Gen	NPAssn	70	56	14	264	2,062						
Indiana, 10,050—Indiana Indiana Hospital▲○	Gen	NPAssn	170	117	20	342	4,252						
Jersey Shore, 5,432—Lycoming							-						
Community Hospital Johnstown, 66,668—Cambria	Gen	NPAssn	32	19	10	130	638						
Conemaugh Valley Memorial	Con	VD teen	210	260	00	cco							
Hospital*▲◆ Lee Homeopathic Hospital▲	Gen	NPAssn NPAssn	312 62	59	33 23	860 348	6,440 1,556						
Mendenhall Maternity Hos- pital	en Mat	Part	20	12	20	242	261						
Mercy Hospital	Gen	Church	107	81	23	574	2,452						
Kane, 6,133—McKenn Community Hospital	Gen	NPAssn	59	39	12	173	1,391						
Kane Summit Hospital	Gen	NPAssn	23	14	6	118	588						
Kane Summit Hospital Kingston, 20,679—Luzerne Nesbitt Memorial Hosp.**	Gen	NPAssn	110	70	20	629	2,620						
Kittanning, 7.550—Armstrong		NPAssn	83	60	10	288	1,970						
Armstrong County Hospital Lancaster, 61,345—Lancaster Lancaster General Hosp.**	Gen	NPAssn	236	228	45		-						
Rossmere Sanatorium	TB	C2Co	55	51		1,075	5,761						
St. Joseph's Hospital*40 Lansdale, 9,316—Montgomery Elm Terrace Hospital		Church	200	13S	30	612	4,301						
Elm Terrace Hospital Latrobe, 11,111—Westmoreland	Gen	NPAssn	28	16	12	109	656						
Latrobe Hospital▲○	Gen	NPAssn	78	65	20	548	2,498						
Laurelton, 327—Union Laurelton State Village	MeDe	State	931	751		•••	200						
Lebanon, 27,206—Lebanon Good Samaritan Hospital*	Gen	NPAssn	100	60	25	460	2,229						
Lebanon Sanatorium Leetsdale, 2,332—Allegheny D. T. Watson Home for	Gen	Corp	40	23	10	157	780						
D. T. Watson Home for	0-41	3170 /											
Crippled Children Lewisburg, 3,571—Union	orth	NPAssn	100	101	••	•••	175						
Evangelical Hospital	Gen Inst	Church USPHS	35 84	20 49	18	252	591 1 228						
U. S. Penitentiary Hospital	Con				••		1,328						
Lewistown Hospitalso	Gen	NPAssn	92	60	21	261	2,519						

PENNSYL	VAN:		ntinu	ed			
		nlp troi		e) +-	ts	ä	
the and the second second second	oe of vice	Ownership or Control	D2	Average Census †	Bassinets	Number   Births	als.
Hospitals and Sanatoriums	Type Servic	Orto Or C	Beds	Ave	Bas	Num Birt	Adn
Lock Haven, 10,810-Clinton							1 000
Lock Haven Hospital Teah Private Hospital		NPAssn Indiv	68 21	50 9	18 4	386 29	1,922 288
Lock No. 4, 618—Washington Charlerol-Monessen Hosp	Gen	NPAssn	126	96	27	615	3,501
Mayview, 420—Allegheny Mayview State Hospital		State S	3,251	3,167			619
Pittsburgh City Home and		City	668	521	9	1	1,060
Hospitals+4 McKeesport, 55,355—Allegheny McKeesport Hospital*	Gen	NPAssn	265	220	60	1,858	6,275
McKees Rocks, 17,021—Allegheny Ohio Valley General Hosp. 40		NPAssn	60	54	23	444	1,778
Meadville, 18,919—Crawford		NPAssa	77	70	16	361	2,236
Meadville City Hospital Spencer Hospital		NPAssu	102	81	29	525	2,813
Media, 5,351—Delaware Media Hospital	Gen	Indly	27	7	4	21	307
Mercer, 2,272—Mercer Mercer Cottage Hospital		Corp	51	27	4	101	1,166
Mercer Sanitarium	N&M	Part	43	37	••	•••	125
Meyersdale, 3,250—Somerset Hazel McGilvery Hospital	Gen	NPAssn	14	6 1	5 3	54 12	272 140
Meyersdale Wenzel Hospital. Monaca, 7,061—Beaver		Indiv	15		_		1
Beaver County Sanatorium Monessen, 20,257-Westmoreland	TB 1	County	62	G1	••	•••	<i>8</i> 0
Gemmill Hospital	T'U T	Part	15	G	••	•••	610
Monongahela, 8,823—Washingto Memorial Hospital	Gen	NPAssn	75	43	9	267	1,735
Mt. Pleasant, 5,824—Westmorel Henry Clay Frick Memorial			44	40	17	060	1,730
Hospitalo Muncy, 2,606—Lycoming	. Gen	NPAssn	62	49	17	382	
Muney Valley Hospital	Gen	NPAssn	20	9	6	61	343
Nanticoke, 24,387—Luzerne Nanticoke State Hospital	Gen	State	120	91	10	332	2,861
New Brighton, 9,630—Beaver Beaver Valley General Hos-	_	\$255 L	-0	46	18	266	1,589
pitalAo		NPAssn	70				3,714
Jameson Memorial Hosp. A. New Castle Hospital	Gen Gen	NPAssn Church	147 105	114 76	21 20	649 412	2,703
Nore Fangington, 23,055-11 USIA	int grame	l NPAssn	107	99	35	546	2,747
Ottizens General Hospital* New Wilmington, 1,018—Lawren	10e	Part	35	20			192
Overlook Sanitarium	. Cony		130	120	30	700	4,098
Montgomery Hospital	Ment	NPAssn State	3,738	3,801	.,	207	848 586
Riverview Hospitalia	Gen	NPAssn Church	30 49	11 42	10 21	387	1,409
On Phonene (West Onester F.V.	J, 100	Chester					
Pennsylvania Epileptic Hos- pital and Colony Farm	. Epil	NPAssn	140	127	••	•••	26
Oil City, 20,379—Venango	TB	NPAssn	30 90	10 67	20	427	37 2,213
Oil City Hospital	. ocb	NPAssn		57	11	234	1,812
Palmerton Hospital Peckville, 8,000—Lackawanna	. Gen	NPAssn	63				1,424
Peckville, 8,000 Backunand	Gen N	NPAssn lester	62	43	8	261	
•	' Эс	State	2,400	2,177	••	•••	283
1		NPAssn	39	20	3	64	760
enses of the Stomacua American Oncologic Hosp.+	- 0404			26 32	24	236	559 2,163
	Chil	NPAssn	14	9 51	30	442	336 1,854
	. Gen	NPAssn NPAssn	98 98	53 60	25	442	2,516 143
Children's Heart Hospital	Cara	NPAssn NPAssn		99	::		2,180
Children's Hospital of the	Chil	Church	50	21	i:	•••	844 182
Community Hospital		NPAssn		11			1,053
Hospital		State Corp	80 46	41 23	48	1,147	130 4,041
Frankford Hospital***	Gen	NPAssn		111		100	675
• 4	. Gen	NPAssn NPAssn		40 139 arcity	10 Hos		149
,	Unit	of Jembu		ersity 229		1,375	6,826
a * A	. Gen	NPAssn NPAssn		30	65	1,510	160
Graduate Hospital of the U	ni-	NPAssn	461	236		1.768	6,203 13,051
.1.	Gen TB	NPAssn Church		451 94	89 ••	1,105	101
	. Gen	Church	452	350	48	1,477	8,263
	Gen	NPAssn	583	372	63	995	10,892
			. 4-0	93	21	697	2,302
Memon Csylvania≠▲○	Gen	NPAssi	ı 152 K				nd abb
- <b></b>			K	ey (o	J 1411		

PENNSVI.VANIAConti	

PENNSYLVANIA—Continued													
	e of ice	Jwnership r Gontrol	_	age ins f	Bassinets	Number of Births	<u>*</u>						
Hospitals and Sanatoriums	Type of Service	Own or C	Beds	Average Census †	Bass	Num	Adm						
Institute of the Pennsylvani.  Hospital+4  Jeanes Hospital+4  Jefferson Medical College	n N&M Cancer	NPAssn NPAssu	60 68	44 45	::		885 617						
Hospital*+40	TB	NPAssn NPAssn	652 42	516 37	53		13,445 154						
Jewish Hospital*+40 Joseph Price Memorial Hos- pital*	Gen Gen	NPAssn NPAssn	409 53	345 20	70 5	1,363 52	7,858 567						
Kensington Hospital for Women+4	GynMat	NPAssn	66	44		910	1,610						
Lankenau Hospital***  Lying-In Hospital	Unit o	NPAssn f Pennsy	259 Avanii 92	182 1 Hos 81	34 pits 19	462 11 377	4,473 2,412						
Memorial Hospital**  Mercy Hospital**	Gen	NPAssn NPAssn	103	80	20	315	2,032						
Methodist Hospital*▲ · · · · ·	Gen	Church	170	122	36	745	3,742						
Miserleordia Hospital***  Mount Sinai Hospital***	Gen	Church NPAssn	192 262	151 220	38 55	1,047	4,943 6,869						
National Stomsch Hospital.		NPAssn	44	12	7	26	392						
Nazareth Hospital	Gen	Church	121 87	69 60	30 15	474 546	2,306 2,215						
Northeastern Hospital*40 Northern Liberties Hospital*	Gen	NPAssn NPAssn	57	41	11	170	1,624						
Northwestern General Hosp	Unit o	t Temple	Univ	ersity	Ho	spital							
Pennsylvania Hospital*+40 Pennsylvania Hospital, Deparment for Mental and Nervo	Gen rt-	NPAssn	433	328	130	2,031	8,993						
Diseases+A0	N&M	NPAssn	225	175	••	•••	236						
pitaj*+40	TB	City City	2,276 400	1,922		1,479	25,594 1,591						
Philadelphia Hospital for Contagious Diseases ***  Philadelphia Psychiatric Hospital Psychiat	Iso TB	City City	90 810	285 42	::		3,803 85						
pital	Ment	NPAssn	62	46 5,791	••		57 1,114						
Philadelphia State Hospital Presbyterian Hospital*+40	Ment Gen	State Church	6,105 367	224	42	701	5,513						
Preston Retreats	Mat	NPAssn	50	18	35	377	350						
tion and Allied Diseases.  St. Agnes Hospital.  St. Christopher's Hospital	TB	NPAssn Church	166 346	89 147	78	\$00	467 3,497						
for Children+4	Chil Gen	NPAssn Church	82 185	51 100	35	539	1,941 2,721						
St. Luke's and Children's  Medical Center**  St. Mary's Hospital**	Gen Gen	NPAssn Church	218 206	147 136	41 41	952 779	5,157 4,070						
St. Vincent's Hospital for Wo men and Children	٠_	Church	137	64	21	491	1,053						
Shriners Hospital for Crip- pled Children	Orth SkCa	NPAssn NPAssn	120 31	101 19	••	:::	456 189						
Stetson Hospital Temple University Hos-	Gen	NPAssa	62 432	45 361	10 41	165 1,17‡	1,660 9,017						
pltal**** U. S. Naval Hospital**	Gen Gen	NPAssa Navy	951	743			8,025						
Urologic Clinic	Uroi	Part	15	7	••		313 3,662						
Wills Hospital+4	eve	NPAsso NPAsso	200 125	130 <i>5</i> 2	;; 41	955	2,972						
Women's Homocopathic Hos-		NPAssn	160	74	40	541	2,655						
Philipsburg, 3,963—Centre	Gen	Indiv State	15 132	7 101	6 18	67 351	3,312 3,312						
Philipsburg State Hospao	Gen	NPAssn	67	40	12	233	1,183						
	Gen	NPAssn	511	375	51	1,195	0,437 611						
	Gen	NPAssn	40	18	10	123	3.892						
in the Heavitan	Chil	NPAssn City	194 415	140 389			(CE)						
City Tuberculosis Hospital Elizabeth Steel Magee Hos- pital 40		NPAssn	309	242	111	3,167	6,575						
Eye, Ear, Nose and Throat	ENT	NPAssn	111	53		•••	4,435						
Hospital+A Fairview Sanatorium Haddon Hospital	N&M	Corp Corp	10 20	8	15	200	571						
Haddon Hospital	Gen	Church	632	606 193	49 32	1,146 815	6,201						
Mercy Hospital*+40 Monteflore Hospital*+40 Municipal Hospital for Con-	Gen	NPAssn	225		44		G17						
Municipal Hospital for Con-	Iso	City	224 89	34 72	iö		1.741						
		Church NPAssn	186	161	21	794 3	1,227 3,570						
Pittsburgh Hospital*+40.		NPAssn	205	137	••								
Rosetta Founding and are	MatCh	NPAsen	110	93	15 60	267 1,555 1	2,413						
		NPAssn NPAssn	640 187	596 181	45	1,273	5,055						
St. John's General and	•			63	20	263	2,(7)						
Dispensary *AO	Gen	Church	110				2,231 5,157						
St. Margaret Memoria.	Con	Church	120 270	224	21 40	E=1	5,157 5,005						
Shadyside Hospital*40	Gen	NPAssn NPAssn	207	151	15								
pital*A0 Shadyside Hospital*A0 South Side Hospital*A0 Tuberculosis League Hosp.A.  S. Varine HospitalA	ŤB	NPASSO USPHS	150 73		: . : .		1,501						
Depreylennia Hos-					GI	1,167 1	0,720						
Western Pennsylvania 200 pital*+40 Woman's Hospital4	Gen Gen	NPAssn NPAssn	600 142		•••		γn						

PENNSYL	PE							
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †	Hospitals and Sana
Pittston, 17,828—Luzerne Pittston Hospital		NPAssn	112	90	18		4,129	Waynesboro, 10,231— Waynesboro Hosp
Polk, 3,690—Venango Polk State School	MeDe			2,924		•••	214	Greene County 1  Hospital
Pottstown, 20,194—Montgomery Hill School Infirmary Homeopathic Hospital	Inst	NPAssn NPAssn	40 50	7 33	i6	233	428 1,309	Wernersville, 1,160—I Wernersville State
Pottstown Hospital Pottsville, 24,530—Schuylkill	Gen	NPAssn	63	44	12	278	1,670	West Chester, 13,289- Chester County H
Lemos B. Warne Hospital	Gen	Indiv NPAssn	78 72 154	30 48 115	12 18 17	132 402 456	1,146 1,998 2,942	Homeopathic Hos
Pottsville Hospital**  Punxsutawney, 9,482—Jefferson Adrian Hospital*	_	NPAssn NPAssn	76	62	10		2,381	Marshall Square & White Haven, 1,528— White Haven San
Quakertown, 5,150—Bucks Quakertown Hospital	_	NPAssn	54	31	12	221	964	Wilkes-Barre, 86,236- Mercy Hospital*▲
Ransom, 150—Lackawanna Ransom Mental Hospital	Ment	County	386	376	••		81	Wilkes-Barre General
Reading, 110,568—Berks Berks County Tuberculosis Sanatorium	тв	County	138	138			140	Wyoming Valley H Hospital▲◇ Wilkinsburg, 29,853—
Homeopathic Hospital*▲	. Gen	NPAssn	112	89	19	462	2,896	Columbia Hospita
Reading Hospital*+40	Gen	NPAssn	276	206	49 30	1,00± 721	5,810   3,963	Williamsport, 44,355-
St. Joseph Hospital*Ao Renovo, 3,874—Clinton		Church	180	150				Rothfuss Clinic an Williamsport Hos
Renovo Hospital Retreat, 2,000—Luzerne		NPAssn	24	10	6	102	614 225	Windber, 9,057—Som Windber Hospital
Retrent Mental Hospital Ridgway, 6,253—Elk Elk County General Hosp		County	63	1,135	10	180	1,506	Woodville, 4,000—Allegheny County District Hospita
Ridley Park, 3,887—Delaware Taylor Hospital		NPAssn	70	67	18	347	2,180	Woodville State I York, 56,712—York
Roaring Spring, 2,724—Blair Nason Hospital		NPAssn	52	37	12	220	1,241	West Side Sanitan York Hospital*▲◆
Rochester, 7,441—Benver Rochester General Hospital	Gen	NPAssn	87	80	12	487	2,448	Related Instit
St. Mary's, 7,653—Elk Andrew Kaul Memorial Hosp Sayre, 7,569—Bradford	. Gen	Church	60	30	12	210	1,005	Bellefonte, 5,304—Cer Western State Per
Robert Packer Hospital*+** Schuylkill Haven, 6,518-Schuyl	Gen kill	NPAssn	204	201	21	687	6,942	Hospital Bellevue, 10,488—Alle
Schuylkill Haven State Hosp Scranton, 140,404—Lackawanna	. Ment	County	583	580	••	•••	128	Salvation Army Home and Hosp
Hahnemann Hospital Lackawanna County Tubero	eu-	NPAssn	109	80	16	664	2,804	Broomall, 800—Delay Convalescent Hos
losis Hospital	TB	County Church	150 84	206 70	20	450	143 2,458	Bryn Mawr, 10,206-1
Moses Taylor Hospital*A	. Gen	NPAssn	120	93	••	430	1,974	Bryn Mawr Colleg Cambridge Springs,
Maternity Hospital St. Mary's Mater Misericor-	. MatCl	h Church	185	153	24	59	176	San Rosario Sani Camp Hill, 3,630—Cu Pennsylvania Ind
diae Hospitalo	. Gen	Church	70	51	12	242	1,350	School
Scranton State Hospital*0. West Side Hospital*0		State NPAssn	320 65	224 51	20 10	529 307	5,024 1,635	Chambersburg, 14,85
Sellersville, 2,115—Bucks Grand View Hospital		NPAssn	74	33	25	373		Chambersburg M Home
Sewickley, 5,614—Allegheny Sewickley Valley Hosp.**		NPAssn	113	99	27	313 729	1,231 4,136	Chester, 59,285—Dela Mercy Hospital
Shamokin, 18,810—Northumber Shamokin State Hospital.	land	State	91	81		607	2,923	Darby, 10,334—Delaw St. Francis' Coun
Sharon, 25,622—Mercer Christian H. Buhl Hosp. 40		NPAssn	132		25		4,913	Ebensburg, 3,719—Co Cambria County : Embreeville, 500—Ch
Shenandoah, 19,790—Schuylkill Locust Mountain State Hos							-,	Embreeville State Erie, 116,955—Erie
pitul ⁴ Somerset, 5,430—Somerset		State	77		14		2,621	Lakeview Hospita Harmarville, 900—Al
Somerset Community Hosp. South Mountain, 200—Franklin Pennsylvania, State, Sana	מ	NPAssn	70	50	10	165	1,902	Harmarville Con Home Harrisburg, 83,893-1
Pennsylvania State Sana- torium No. 1 (Mont Alto) Spangler, 3,201—Cambria Miners' Hospital of Northe	. TB	State	1,700	1,040		•••	895	Dauphin County Johnstown, 66,668—( Municipal Hospita
Cambria	rn Gen	NPAssn	86	64	10	360	2,310	Lancaster, 61,345L
State College, 6,226—Centre Pennsylvania State Colleg Health Service Hospital	e Inst	State	30	10			922	Lancaster County District Lanchorne 1 221-R
Sunbury, 15,462—Northumberle Mary M. Packer Hospital.	and Gen	NPAssn		60		352	2,293	District© Langhorne, 1,221—B Marydell School Mercer, 2,272—Mercer
Susquehanna, 2,740—Susqueha Simon H. Barnes Memorial	nna							Mercer. 2,272—Mercer Mercer County Ho Hospital Middletown, 7,046—I
Hospital Tarentum, 9,846—Allegheny Allegheny Valley Hospital		NPAssn NPAssn		12 so			319	Odd Fellows' Hor
Taylor, 9,002—Lackawanna Taylor Hospital		NPAssn		89 48	17 13		3,234 2,095	Morganza, 900—Was Pennsylvania Tra School
Titusville, 8,126—Crawford Titusville HospitalA Torrance, 600—Westmoreland		NPAssn		27			1,045	School
Torrance, 500—Westmoreland Torrance State Hospital Uniontown, 21,819—Fayette	Ment	State	2,119	1,919		•••	559	Lake
Warren, 14,591-Warren	Gen	NPAssn	210	182	15	631	5,987	James C. Smith : Home Olyphant, 9,252—Lac
Warren General HospitalA. Warren State Hospital+A©	Ment	NPAssn State	2,700	68 2,415		468	2,539 849	Philadelph'
	n Gen Gen	Corp NPAssn	48 138	24 106		656	263 3,609	Belle Vis Belmont Army
Farview State Hospital		State	1,074				89	Florence Crittente Kenwood Sanitari
			F	(cy to	syn	nbols a	nd abb	reviations is on page

## PENNSYLVANIA-Continued

PENNSYLVANIA—Continued													
	10	rship ntrol		15 d	nets	oer of	<u>.</u> .						
Hospitals and Sanatoriums	Type Servic	Ownership or Control	Beds	Avorage Census †	Bassinets	Number Births	Admis						
Waynesboro, 10,231—Franklin Waynesboro Hospital Waynesburg, 4,891—Greene	Gen	NPAssn	57	39	15	309	1,280						
Greene County Memorial Hospital Wernersville, 1,160—Berks	Gen	NPAssn	68	50	12	204	1,893						
Wernersville State Hospital. West Chester, 13,289—Chester	Ment	State	1,590	1,563	٠.	•••	364						
Chester County Hospital*AO Homeopathic Hospital of	Gen	NPAssn	148	102	28	602	3,407						
Chester County	Gen N&M	NPAssn Part	62 60	44 45	15 	251	1,505 186						
White Haven Sanat. +40 Wilkes-Barre, 86,236—Luzerne	тв	NPAssn	240	193	••	•••	318						
Mercy Hospital** Wilkes-Barre General Hos-		Church	195	138	25	548	4,353						
pital*A0 Wyoming Valley Homeopathi	Gen c	NPAssn	360	226	43	960	7,680						
Hospital♣♦ Wilkinsburg, 29,853—Allegheny	Gen	NPAssn	84	60	23	471	2,212						
Columbia Hospital** Williamsport, 44,355—Lycoming		Church	179	132	40	846	4,330						
Rothfuss Clinic and Hosp Williamsport Hospital*4 Windber, 9,057—Somerset		Indiv NPAssn	25 231	8 165	6 44	74 921	405 5,563						
Windber Hospital**  Woodville, 4,000—Allegheny  Allegheny County Institution	Gen	NPAssn	107	85	10	333	2,583						
District Hospital	GenInst Ment	County State	1,113 2,766	750	:.	Estat	637 5. 1941						
West Side Sanitarium York Hospital*		Indiv NPAssn	50 194	22 154	$\begin{array}{c} 10 \\ 25 \end{array}$	46 1,103	697 5,213						
Related Institutions Bellefonte, 5,304—Centre													
Western State Penitentiary Hospital	Inst	State	22	15			441						
Bellevue, 10,488—Allegheny Salvation Army Women's													
Home and Hospital  Broomall, 800—Delaware	Mat	Church NPAssn	10	7	10	55	119						
Convalescent Hospital  Bryn Mawr, 10,206—Montgomery	7		30	22 7	••	•••	307						
Bryn Mawr College Infirmary Cambridge Springs, 1,807—Craw San Rosario Sanitarium	ford	NPAssn Church	20 32	12	••	•••	509						
Camp Hill, 3,630—Cumberland Pennsylvania Industrial					••	•••	281						
School Chambersburg, 14,852—Franklin Chambersburg Maternity	1	State	40	22	••	•••	400						
Home	Mat	Part	9	4	9	164	167						
Mercy Hospital Darby, 10,334—Delaware St. Francis' Country House.		NPAssn		14	8	124	588						
Ebensburg, 3,719—Cambria		Church	85	45	••	•••	350						
Cambria County Hospital Embreeville, 500—Chester		County	110	103	••	•••	200						
Embreeville State Hospital Eric, 116,955—Eric Lakeview Hospital		State	350 84	310	••	•••	105						
Harmarville, 900—Allegheny Harmarville Convalescent						***							
Harrisburg, 83,893-Dauphin		NPAssn	46	43	30	•••	356						
Dauphin County Hospital Johnstown, 66,668—Cambria Municipal Hospital	Iso	County	150 30	145	••	•••	141 50						
Lancaster, 61,345—Lancaster Lancaster County Institution	ם				••	•••	10						
District© Langhorne, 1,221—Bucks Marydell School		County	491	481	••	•••	259						
Marydell School	wene	Part	70	52	••	• • • •	60						
Hospital Middletown, 7,046—Dauphin	Ment	County	375	314	••	•••	121						
Morganza, 900—Washington Pennsylvania Training	Inst	NPAssn	37	37	••	•••	22						
North East, 3,704—Erle St. Barnabas' House by the	Inst	State	40	15	••	•••	625						
Oakbourne (West Chester P.O.) James C. Smith Memorial	Incur , 100—C	Church hester	35	35	••	•••	28						
HomeOlyphant, 9,252—Lackawanna Blakely Home and Hospital.	Ment	Church	23 164	12 150	••	•••	279 23						
Blakely Home and Hospital. Philadelph' Belle Vis	'\ . · ·	Indiv	75	66	••		105						
Belmont Army Florence Crittenton Home	2	Church	10	5	10	133	137						
Florence Crittenton Home,. Kenwood Sanitarium	Mat N&M	NPAssn Corp	14 40	13 30	14	37	39 81						

PENNSYLV	NIAC	'onti	houn				MARCH 28, 194;
		,011(1)		_	•		SOUTH CAROLINA
Related Institutions	Service Ownership or Control	Bods	Average Census t	Bassinets	Number of	Admis-	Type of Service Control of Control of Bassing Bassing Burths of Bassing Burths Stone of Barths Stone of Service Control of Bassing Bas
Philadelphia County Prison Hospital (Holmesburg) In Philadelphia County Prison							Abbeville, 4.930—Abbeville
Hospital (Reed St.) In	t Count	y 34	! 5				Abbeville County Memorial Hospital Gen NPAssn 40 14 5 52 423
Philadelphia Home for Incurables	ur NPAss	n 240	236		•••		Alken County Hospital Gen County co co co
Sharon Hall Co	nv Indiv	20 60	18		•••	30	Anderson County Hospital A Gen NPAssn 112 52 0 101 102
Hasley Nursing Home and Hos-	-			•	•••		Bennettsville, 4,895—Marlboro Marlboro County General
pital		17	10	••	•••	30	Hospital
Children Or Western State Penitentiary	h NPAss	n 80	70	••		70	Charleston, 71.275—Charleston
Hospital Ins Retreat, 2,000—Luzerne	t State	39	32	••	•••	704	Baker Memorial Sanat Gen NPAssn 50 40 10 375 2,015 Roper Hospital ** Gen NPAssn 325 297 30 905 8550
Luzerne County Home and Infirmary	t County	7 500	241			53	St. Francis Xavier Infirm- ary 40
Rochester, 7,441—Beaver Passavant Memorial Homes for the Care of Epileptics. Ep	) Ohumah	100	* 40				Chester, 6,392—Chester
Scranton, 140,404—Lackawanna Municipal Contagious Dis-	l Church	139	140	••	•••	22	Fryor Hospital
ease Hospital Iso Selinsgrove, 2,877—Snyder	City	45	7	••	•••	65	Columbia, 62,396—Richland Columbia Hospital*40 Gen County 275 272 30 1.057 9.037
Selinsgrove State Colony for Epileptics Ep	1 State	519	467		•••	122	Good Samaritan-Wayerly Hospitalo
Somerset, 5,430—Somerset Somerset State Hospital Me:	ıt State	508	495			103	Orthopedic Hospital Orth Indiv 16 14 275 Providence Hospital Gen Church 96 56 14 343 2,190
Towanda, 4,154—Bradford Mills Hospital Ger	Indiv	27	19	9	108	228	Ridgewood Tuberculosis Camp
Wawa, 300—Delaware Sanatorium School Ort	h Indiv	23	23			23	pital A 0
Williamstown, 2,769—Dauphin Williams Valley Hospital Ger	NPAssi	1 24	2	2	1	20	South Carolina State Hosp. Ment State 4,670 4,578 1,300
Willow Grove, 12,000—Montgomery Willow Crest for Convales- cents	w NPAger	ı 82	67			1,251	Conway, 5,066—Horry   Conway Hospital Gen NPAssn 65 37 11 480 2,341
			٠.	••	•••	1,401	Florence, 16,054—Florence Florence-Darlington Tubercu- losis SanatoriumTB Countles 100 90 105
RHODE		4D					McLeod Infirmary 10 Gen NPAssn 190 135 15 242 4,651 Saunders Memorial Hosp. 4 Gen NPAssn 72 43 7 107 1,906
#8	ship atro		60 4-	ets	, o 10	٠.	Gaffney, 7,636-Cherokee
Hospitals and Sanatoriums	Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admis- sions †	Cherokee County Hospital. Gen County 50 29 4 81 1,196 Greenville, 34,734—Greenville Greenville County Tuberculo-
Central Falls, 25,248—Providence	00	A	40	щ	ZM	A BI	sis SanatoriumTB County 81 76 65 Greenville General Hosp.**A Gen City 286 218 30 767 7,698
Notre Dame Hospital Gen East Greenwich, 3,842—Kent	NPAssn	50	38	14	329	1,207	Dr. Jervey's Private Hosp ENT Indiv 15 3 220 St. Francis Hospital4 Gen Church 110 87 24 575 3,769
•	of Rhode	Island	Hospi	tal,	Provi	dence	Shriners Hospital for Crippled Children Orth NPAssn 60 59 277 Working Benevolent Hosp., Gen NPAssn 22 7 2 32 214
Ens En Nova	hil NDAssa	50	45			85	Greenwood, 13,020-Greenwood
Home Nerv(		50	38	••	•••	37	Greenwood Hospital Gen NPAssn 73 46 6 383 1,920
St. Joseph's Hospital TB Howard, 5,000—Providence State Hospital for Mental	Church	30	99	••	•••	91	Hartsville, 5,399—Darlington  Byerly Hospital
Diseases+40 Mer State Infirmary4 Gen	t State State	3,114 981	2,800 834	 20	67	686 1,175	Gen NPAssn 45 20 8 54 820
Newport, 30,532—Newport Newport Hospital Gen	NPAssn	158	115	32		3,566	Whitehead Infirmary Gen Indiv 12 6 5 53 332
Station Hospital Gen U. S. Naval Hospital** Gen	Army Navy	70 345				1,044 2,143	Lancaster, 4,430—Lancaster Marion Sims Memorial Hosp. Gen NPAssn 50 No data supplied
Pawtucket, 75,797—Providence Memorial Hospital** Gen	NPAssn	166	139	34	862	3,902	Laurens, 6,694—Laurens Laurens County Hospital Gen County 30 17 5 101 843
Providence, 253,504—Providence Butler Hospital+40 N&:	ı NPAssn	174	150	••		168	Moneks Corner, 1,165—Berkeley Berkeley County Hospital GenTb NPAssn 58 32 6 107 1,004
Charles V. Chapin Hospital+AO TblsoNo	&M City	265	173			1,998	Moultrieville, 515—Charleston Station Hospital Gen Army 102 48 4 20 2,522
Homeopathic Hospital*40 Gen Jane Brown Memorial Hosp Unl	NPASSD	162 Island	134 Hospit	tal	994	· [	Mullins, 4,392—Marion Martin's Private Hospital Gen Indiv 32 18 9 96 1,461 Mulling Hospitale Gen NPAssp 58 23 7 123 1,503
Miriam Hospital	NPAssn NPAssn	63	47 126 1	14	311 3,607		Navy Yard, 1,025—Charleston
Rhode Island Hospital*+Ao. Gen	NPAssn		371 248		1,059	9,236	Newberry, 7.510—Newberry
St. Joseph Hospital*** Gen Wakefield, 4,000-Washington	Church				•	· }	Newherry County Hospital. Gen NPAssn 23 10 December 10.521—Orangeburg
South County Hospital Gen	NPAssn	44	35		246	- 1	Tri-County Hospitalo Gen City 122 124 12 220 4,510 Urological Institute Unit of Tri-County Hospital
State Sanatorium+A TB Westerly, 11,199—Washington	State	618	527		•••	413	Parris Island, 250—Beaufort U. S. Naval Hospital** Gen Navy 162 83 6 33 2,023
Westerly Hospital Gen Woonsocket, 49,303—Providence	NPAssn	61	37	12	241		Ridgeland, 1,021—Jasper Evelyn Ritter Hospital Gen Indiv 30 14 6 66 663
Woonsocket Hospital Gen	NPAssn	145	88 8	39	679 3	3,207	Rock Hill, 15,009—10rk St. Philin's Mercy Hospital., Gen Church 62 42 6 243 2,002
Related Institutions Hoasie, 135—Kent							York County HospitalGen County 87 40 13 14 55 Seneen, 2,155—Oconec County HospitalGen NPAssn 45 24 4 153 1245
Lakeside Home and Mary	NPAssn	49	42	••	•••	203	Six Mile, 152—Pickens Gen Indiv 40 29 3 42 624
Exeter School MeD		767	769		•••	75	pitalAo
Heath Sanatorium Annex Con	Indiv Indiv	15 14	10 · 14 ·			10 10	Spartanburg General Hos- Gen County 273 100 22 001 6,017
St. Elizabeth Home for In- curables Incu	r Church	70	67 -		•••	23	J.B. Count.
-		Ke	y to sy	mbo	is and	abbre	iations is on page 1071

Number 13																
	SOUTH (	CAROL	INA-	Conti	nued	l			SOUTH	DAKO		Contir	ıued		_	
Hospitals ar	ıd Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †	Hospitals and Sanatoriums	Type of Service	Ownership or Control	Bcds	Average Census f	Bassinets	Number of Births	Admis- sions †
State Park, 10 Palmetto Sa	00-Richland inatorium		of South	Caroli	na Sa	nato	rium		Redfield, 2,425—Spink Baldwin Community Hosp		City	14	7	4	74	338
South Care Summerville,	olina Sanatori 3,023—Dorchest County Hospi	um TB er	State County	550 49	491 29	••	122	793 1,072	Rosebud, 120—Todd Rosebud Agency Indian Hospital	. Gen	IA	55	40	7	108	1,353
Sumter, 15,874 Tuomey Ho	—Sumter ospital▲○ st, 1,200—Green	Gen	NPAssn	114	85	16	364	3,093	Sanator, 10—Custer South Dakota State Sana- torium for Tuberculosis.	., тв	State	192	137			111
Coleman H Union, 8,478—	ospital Union	Gen	Part City	15 25	8 17	5 3	38 122	495 901	Sloux Falls, 40,832—Minnehaha McKennan Hospital▲○	ı Gen	Church	113	73 96	26 26	493 447	2,955 3,274
Walterboro, a	omson Hospita 3,373—Colleton 'Dorn Hospita'	1 Gen	Indiv	42		10	115		Sioux Valley Hospital ^o Sisseton, 2,513—Roberts Sisseton Indian Hospital		NPAssn IA	140 37	20	8	53	666
Woodruff, 3,5 Workman	08—Spartanbu Memorial Hosp	rg o Gen	Indiv	12	7	2	27	418	Volga, 632—Brookings Volga Hospital	Gen	NPAssn	16	8	6	69	395
Clinton 5 704	d Institutions —Laurens		Q4-4-	070	010			71	Watertown, 10,617—Codington Bartron Hospital • Luther Hospital •	Gen	NPAssn Church	65 65	52 46	$\frac{12}{12}$	211 195	1,845 1,594
State Train Newberry, 7,5 People's H	ning School 10—Newberry ospital	MeDe Gen	State NPAssn	858 15	816 5	3	 7	211	Webster, 2,173—Day Peabody Hospitalo	Gen	Indiv	50	25	9	169	•••
Sumter, 15,87	i—Sumter e, Sumter Coun sis Sanitariun	ty	СуСо	26	19			47	Winner, 2,426—Tripp Wilson Hospital Winner General Hospital	Gen Gen	Indiv Part	10 16	4 6	3 6	39 88	199 301
<b>2</b>			DAKO	та					Yankton, 6,798—Yankton Sacred Heart Hospital Yankton State Hospital	Gen Ment	Church State	170 1,887	97 1,592	20	276	2,819 364
	50	0 1 11				~	Ä		Related Institutions							
		<b>5</b> 9	rshi		is t	nets	er (	<b>.</b>	Flandreau, 2,212—Moody Flandreau Indian School							
Hospitals a	nd Sanatorium	" Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †	Hospital	Inst	IA	32	7	••	•••	345
Aberdeen, 17, St. Luke's	Hospital▲		Church			25	483	4,548	DeVall Hospital  Hot Springs, 4,083—Fall River State Soldiers' Home Hosp		Indiv State	10 36	1 19	2	8	49 200
Belle Fourch John Burn Bowdle, 757—	e, 2,496—Butte s Memorial He -Edmunds	osp. Gen	NPAssr	n 25	5	10	77	546	Platte, 1,017—Charles Mix Platte Hospital		Indiv	8		5	7	44
Community Brookings, 5	y Hospital .346—Brookings	3	NPAssr City	1 10 . 33	10	4 12	40	200 1,094	Redfield, 2,428—Spink State School and Home to Feebleminded	r MeDe	State	750	656			89
Burke Hos	Municipal Hos Gregory spital	Gen	NPAssr	_	7	5	74	331	Sioux Falls, 40,832—Minnehah Moe Memorial Hospital an	n d				••	•••	
Cheyenne l	ency, 121—Dewo River Indian H ,100—Lawrence	osp, Gen	IA	40	20	6	55	512	Wagner, 1,319—Charles Mix Duggan Hospital		Church Indiv	65 12	49 9	 4	53	200 360
St. Joseph Dell Rapids,	's Hospital 1,706—Minneha Is Hospital	Gen ha	Church			12	267	•	Yankton Indian Hospital.		IA	26	19	5	61	633
Eureka, 1,45	-McPherson		Part	30	9		28	239	1	ENNI	ESSEE					
Faulkton, 74	ommunity Hosp 17—Faulk unty Hospital		NPAssi County		14 2		112 38	705 398		<b>~</b>	hip trol		e +-	its	r of	
Flandreau, : Flandreau	2,212—Moody Municipal Hos		City	18	9		78	313	Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number ( Births	Admis- sions †
Station H	, 850—Meade lospital▲ oson, 180—Buffa	Gen	Army	120	52	2	18	842	Athens, 6,930—McMinn							
Crow Cree Gregory, 1,2	k Hospital	Gen	IA	20	10		42	318	Epperson Clinic-Hospital Force Hospital Bristol, 14,004—Sullivan		Indiv Part	50 20	10 12	8 5	137 108	669 680
Hot Springs	s, 4,083—Fall Riv Sanatorium	ver	Church	18	10	6	69	496	Hooks-English Infirmary Brownsville, 4,012—Haywood	_	Part	10	4	••	•••	485
Our Lady	of Lourdes H d Sanitarium.	os-	Church Church		28 38		44 53		Haywood County Memoria Hospital	Gen	NPAssn	32	12	4	56	606
Veterans	Admin. Facilit	y▲ Gen TB	Vet Vet	249 32	156 25				Baroness Erlanger Hos- pital*+40 Earl Campbell Clinic	Gen	CyCo Indiy	499 18	284 9	58 7	1,798 78	11,248 626
Huron, 10,8- Sprague 1 Lead, 7,520-	Hospital≎	Gen	NPAss	n 54	44	8	212	1,775	Newell and Newell Sanit.	Gen TB	Part NPAssr	65	35 266		27	2,163 393
Homestal Lemmon, 1,	ke Hospital▲ . 781—Perkins					·			Physicians and Surgeons Hospital T. C. Thompson Children's	Gen	Indiv	19	14	8	130	400
Madison, 5,0	Hospital DIS—Lake Community Ho		Indiv NPAss	12 n 50		10	10 125		Hospital+≜⊙	Chil	CyCo Indiv	84 15	50 7	9	148	1,276 300
Milbank, 2,7 St. Berna	45—Grant rd Providence	Hos-	Church	h 27	15	i S	131	Eco	Clarksville, 11,831—Montgome Clarksville Home Infirmar Clarksville Hospital	y. Gen	Indiv NPAssn	25 40	3 23		6 102	286 954
Miller, 1,460- Miller Ho	—Hand spital and Clin		Part	18		. 5	100		Cleveland, 11,351—Bradley Physicians and Surgeons							
Methodist	633—Davíson : State Hospita h Hospital▲○	al≜≎, Gen	Churel Churel	h 100 h 118		15	213 251	2,804 2,662	Hospital Speck Hospital Columbia, 10,034—Maury	Gen	Indiv NPAssn	25 30	8 5	4	44 14	566 205
Mobridge, 3 Lowe Ho	,008-Walworth spital	Gen	Indiv	20	9	6	60	435	Kings Daughters Hospitals Dayton, 1,870—Rhea		NPAssr		21	8	117	-
New Underv New Underv	rood, 214—Penn	ington	NPAss				85		Broyles Private Hospital. Thomison Hospital  Dyersburg, 10,034—Dyer		Indiv Indiv	12 10	5 8	3 4	25 20	234 300
Hospita Pierre, 4,322 St. Mary	l —Hughes 's Hospitalo	Gen	NPAss Church			6 6 L 16	79 266		Baird-Brewer General Host Elizabethton, 8,516—Carter		Corp	38	14	8	90	829
Pine Ridge, Pine Ridg	618—Shannon ce Hospital	Gen	IA	59		2 10		1,370	St. Elizabeth General Hos Erwin, 3,350—Unicoi Erwin Community Hospita	_	Corp	25 1 15	12 3	5 5	154 41	792 223
Black Hil St. John'	13,844—Penning ls General Hos s McNamara H	pital Gen	Church	h 50	37	7 10	145	1,327	Etowah, 3,362—McMinn Etowah Hospital		Indly	. 13	5	3	51	332
pital▲≎	natorium	Gen	Churc'	h 75 134		16	265	•	Franklin, 4,120—Williamson German-Rice-Guffee Hospi		Part	16	8	4	133	GSS
				_	_											

TENNE	SSEE	Con	tinue	đ		TENNESSEE—Continued										
				-	ài	ŏ		<b>,</b>								
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census t	Bassinets	Number Births	Admis-	Control of	Admis- sions t							
Greeneville, 6,784—Greene Greeneville Sanatorium and Hospitai40	Gen	Corp	60	21	3	51	881	Pleasant Hill, 178—Cumberland "Uprands" Cumberland Mountain Hospital and Sana-	< 8							
Takoma Hospital and Sani- tarium. Humboldt, 5,160—Gibson	Gen	NPAssn	52	37	6	90	1,434	towism.	253							
Juckson 24 322-Madicon		Indiv	10	5	2	42	274	International Printing Press- men and Assistants' Union								
Fitts-White Clinic	Gen Gen	Part NPAssn	25 30	17 14	8 6	79 116		SanatoriumTB NPAssn 40 20 Pulaski, 5,314—Giles	12							
Webb-Williamson Hospital- Clinic Jefferson City, 2,576—Jefferson		Corp	24	16	6	99	915	Pulaski Hospital	532							
Cherokee Dam Hospital Jefferson Hospital	Gen	Fed Indiv	12 30	12	3	97	227 868	torium	n,							
Johnson City, 25,332—Washingt Appalachian Hospital*0 Budd Clinic and Hospital	Gen Gen	NPAssn Indiv	64 20	45 5	13 2	384 19		Rockwood, 3,951—Ronne Chamberlain Memorial Hosp. Gen NPAssn 50 20 10 129 1, Rogersville, 2,018—Hawkins	,005							
Budd Clinic and Hospital Campbell's Eye, Ear, Nose and Throat Hospital	ENT	Indiv	10	3		,	700		420							
Jones Eye, Ear, Nose and	ENT	Part	28	17	••		1,438	Emerald-Hodgson Memorial Hospital	793							
Hospital	Gen	NPAssn	53	55	9	541	2,573	Springheld, 6,668—Robertson Robertson County Hospital. Gen County 45 14 6 24	450							
Knoxville, 111,580—Knox Beverly Hills Sanatorium		CyCo	145	114			126		520							
Dr. H. E. Christenberry Eye Ear, Nose and Throat In-				_				Union City, 7,256—Obion Union City Clinic	513							
firmary Eastern State Hospital	Ment	Indiv State NPAssn	1,631	1,610		0.0	931 553 5,983		688							
Fort Sanders Hospital Knoxville General Hosp. ** A Reaves-Leach Infirmary	Gen	City Part	200 285 7			1,033		Good Samaritan Hospital Gen Indiv 26 15 6 61 6	622							
St. Mary's Memorial Hos-		Church	100	73			3,455	Related Institutions Chattanooga, 128,162—Hamilton								
Lawrenceburg, 3,807-Lawrence Lawrenceburg Sanitarium an	ıd		-				•	William L. Bork Memorial Hospital	141							
HospitalLebanon, 5,850-Wilson		Church Part	20 20	11.	4	54 44	600 450	Tennessee Home and Training School for Feebleminded								
Martha Gaston Hospital McFarland Hospital Lenoir City, —Loudon		Indiv	35	28	5		1,523	Persons MeDe State 520 650 Fayetteville, 4,684—Lincoln	37 160							
Fort Loudoun Dam Hosp Livingston, 1,527—Overton	Indus	Fed	10	•••	••	Estab.		Knoxville, 111,550—Knox								
Lady Ann Hospital Loudon, 3,017—Loudon		Indiv	14	6	2	29	241	dren's Hospital Orth NPAssn 30 19	32 73							
Loudon County Hospital Madison College, 510—Davidson		County	25	9	4	60	592	)	97							
Madison Rural Sanitarium and Hospital	Gen	NPAssn	113	84	9	161	1,954	Orth Indiv 12 7 31 Inst County 707 582 43	50 57							
Fort Craig Hospital		Indiv	40	20	6	73	923	Orth NPAssn 36 36 9	93							
Baptist Memorial Hosp,*** Collins Chapel Connectional		Church	480	367		1,050	770	Tennessee State Penitentiary Hospital	20							
Hospitalo Crippled Children's Hospital		Church	50 48	35 36		15	158	Shelbyville, 6,537—Bedford Bedford County Hospital Gen NPAssn 35 5 6 89 1,62	7							
School	Gen	Corp NPAssn	42 67	24 58	8	48	1,206 397	TEXAS								
4.4	Gen Gen	City Corp	489 48		61 12	2,229 1 162	1,020	in roll								
	l ENT Gen	NPAssn Church	69 250	23 204	50	1.309	1,574 8,837	Type of Service  Ownershin or Control  Mumber or Mumber								
Curper Cutten Sanatoriums.	Gen N&M	Church Part	$\frac{222}{20}$	12	• •		7,472 156	Abitene 96 612—Taylor								
U. S. Marine Hospital	Gen	USPHS Vet Indiv	130 450 75	369	••		1,905 4,579 329	Abilene State Hospital Epil State 1,303 1,007 12 470 4,007	į							
Wallace Sanitarium	Orth	Part	60	47	••	•••	1,144	A , Bhreiolans and Suffeens	,							
Hamblen HOSDIGA	Gen Gen	NPAssn Indiv	25 20	7 8	5 4	49 70	837 712	Hospital								
· · · · · · · · · · · · · · · · · · ·	מי	Vet	536		••		2,872	Alpine Clinic Hospital Gen Indiv 10 2 3 22 Amarillo, 61,686—Potter Northwest Texas Hospital GenTb County 150 87 20 663 3,235								
	ent	NPAssn Vet	42 785	22 539	8	259	1,354 539	Potter County Tuberculosis Unit of Northwest Texas Hospital								
Central State Borgana City View Sanitarium		Indiv	50	20		23	378 270 639	Veterans Admin. Facility Gen Vet 156 145 1601 Atlanta, 2,453—Cass								
Davidson County Tubereu-	TB	County	797 300	743 250			401	Ellington Memorial Hosp Gen Fait  Austin, 57,930—Travis  Austin, 58,412 Hospital Ment State 2,761 2,773 425								
Meharry Medical Col-		NPAssn	165	108	21	302	2,511	Austin-Travis County Sana TB CyCo 45 40 50 615 400 torium TB C								
Hospital for the Criminal	Unit of			Hospi	tal	1,127	7,056	Holy Cross Hospital Gen Church 41 33 12 516 4,113								
Nashvine General Add	Gen	City NPAssn Church	269 104 178	90 140	10	591 876	4,505 )	Seton Hospitala								
Protestant Hospital*Ao St. Thomas Hospital*Ao Vanderbilt University Hospital*Ao	_	NPAssn	333	195	58	748	6,105	osp. Gen NPAssn 14 3 2 13 277								
Oakville Memorial Sanat		CyCo	350		••		234	Matagorda General Hospital Gen County 23 10 5								
Paris, 6,395—Heary McSwain Clinic Nobles Memorial Hospital	Gen Gen	Indir Part	21 25	3 7	4 3	26 43	490 554	Bartond Hospital								
Vopies premoting most-grant			, Kε	y to s	ymb	ols an	d abbr	eviations is on page 1071								

TEXAS-	-Continue	TEXAS—Continued												
of	rship natrol		1ge 18 †	nets	ber of	±. ←		<b>J</b> 03	rnership Control		age us †	inets	Number of Births	<u>.</u>
Hospitals and Sanatoriums	Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admis- sions †	Hospitals and Sanatoriums	Type of Service	Owne or Co	Beds	Average Census †	Bassinets	Num	Admis- sions †
Beaumont, 59,061—Jefferson Hotel Dieu Hospital Gen Jefferson County Tubercu-	Church	146	97	14	670	4,779	Cuero, 5,474—De Witt Burns Hospital Lutheran Hospital		Church Part	35 35	12 21	6 6	40 41	520 434
losis Hospital TB Jefferson County Tubercu-	County	115 60	88	••	•••	106 44	Dalhart, 4,682—Dallam Loretto Hospital		Church	40	9	12	99	574
losis Hospital No. 2 TB St. Therese Hospital Ger Beeville, 6,789—Bee		75	38 29	iò		1,897	Dallas, 294,734—Dallas Baylor University Hosp.*+A Beverly Hills Sanitarium		Church Corp	400 30	315 25	50	1,719	14,679 191
Beeville Hospital Ger Thomas Memorial Hospital. Ger Bellville, 1,347—Austin		30 22	14 19	6 8	40 95	517 631	Bradford Memorial Hospita for Babies+4	l	NPAssn	60	29			928
Bellville Hospital Ger Big Spring, 12,604—Howard		10	4	3	60	379	Carman Sanatorium Carrell-Girard Clinic	. Orth	Corp Part	25 17 63	18 10 30	::	•••	65 330 817
Big Spring Hospital Ger Big Spring State Hospital Mer Cowper Clinic and Hospital. Ger	it State	23 450 10	20 441 7	6  5	104 75	1,166 198 342	Childrens Hospital+  Dallas Medical and Surgical  Clinic Hospital*		NPAssn Part	27	17	••		1,651
Malone and Hogan Clinic- Hospital		20	7	8	67	583	Gaston Hospital▲ Medical Arts Hospital+▲	. Gen . Gen	NPAssn Corp	55 86	47 75	••		1,989 4,258
S. B. Allen Memorial Hosp. Ger	NPAssn	40	13	6	127	540	Methodist Hospital** Nightingale Lying-In Hosp	.Unit (	Church of Baylor		rsity			4,665
Borger, 10,018—Hutchinson North Plains Hospital Ger Bowie, 3,470—Montague	County	22	12	7	375	985	Parkland Hospital*+** Pinkston Clinic	. Gen	CyCo Indiv	355 15	6	2	1,640	9,764 254
Bowie Clinic Hospital Ger Brackettville, 2,653—Kinney		15	9	4	52	467	St. Paul's Hospital** Texas Scottish Rite Hospita for Crippled Children**	I.	Church NPAssn	270 50	254 51	30	1,565	684
Station Hospital Ger Brady, 5,002—McCulloch		50	28	2	2	882	Timberlawn Sanitarium Veterans Admin. Facility.	. Ment . Gen	NPAssn Vet	50 250	33 216	::		224 2,049
Brady Hospital Ger Brenham, 6,435—Washington Sarah B. Milroy Memorial	Part	50	30	10	203	1,279	Woodlawn Hospital Decatur, 2,578—Wise	. TB	СуСо	123	100	••	• • • •	212
Hospital Ger St. Francis Hospital Ger	Corp Church	21 25	5 8	6 6	40 63	395 405	Decatur Clinic Hospital Rogers Hospital Denison, 15.581—Grayson	. Gen	Indiv Indiv	14 20	8 10	7 5	125 158	524 810
Brownfield, 4,009—Terry Treadaway-Daniell Hospital. Ge Brownsyille, 22,083—Cameron	n Part	22	11	6	133	696	Denison, 15,581—Grayson Denison City Hospital Long-Sneed Clinic Hospital	. Gen	NPAssn Part	30 16	16 8	6 5	234 154	765 783
Mercy Hospital Ger Station Hospital Ger		50 50	16 11	8 1	150 23	912 498	Missouri, Kansas, Texas Ra road Employees Hospital. Denton, 11,192—Denton	ıı- . Indus	NPAssn	65	30			459
Brownwood, 13,398—Brown Brownwood Memorial Hosp Ger	Corp	32	23	4		1,564	Denton Hospital and Clinic Medical and Surgical Clinic.	. Gen . Gen	Indiv Part	25 11	14 5	6 4	145 100	856 400
Medical Arts Hospital Ger Bryan, 11,842—Brazos	NPAssn	36	18	4	71	1,276	Dublin, 2,546—Erath Guy Hospital East Bernard, 600—Wharton	. Gen	Indiv	10	2	3	110	304
Bryan-College Medical Cen- ter Hospital Ger St. Joseph Hospital Ger		22 25	11 9	7 8	220 144	936 692	Albert Schuhmann Hospital Eden, 1,603—Concho	. Gen	Indiv	10	7	3	70	301
Burnet, 1,945—Burnet Shepperd-Allen Hospital Ge		18	7	6	93	522	Eden Clinic Hospital Edinburg, 8,718—Hidalgo	. Gen	Indiv	14	•••	••	Estub	, 1941
Burton, 350—Washington Burton Hospital Ger		10	4	3	32	122	Grandview Hospital El Campo, 3,906—Wharton		CyCo	46		12	92	787
Cameron, 5,040—Milam Cameron Hospital Ge	n Indiv	28	13	6	149	695	Nightingale Hospital Electra, 5,588—Wichita		County	50		12	123	1,082
Canadian, 2,151—Hemphill Canadian Hospital Ge Canyon, 2,622—Randall	ı Indiv	10	3	3	64	237	Electra Hospital Elgin, 2,008—Scott Fleming Hospital		Indiv Corp	25 8	8	7 3	110 33	416 303
Neblett Hospital Ge Center, 3,010—Shelby	n Indiv	15	7	4	68	742	El Paso, 96,810—El Paso El Paso City-County Hos-	. GLI	corp ,	Ü	Ü	٠	00	000
Center Sanitarium Ge Warren Hospital Ge	n Indiv n Part	13 12	6 6	3 1	74 28	558 225	pital*▲	TB	C2C0	147 45	100 31		695	4,242 137
Childress, 6,464—Childress Jeter-Townsend Hospital Ge		20	6	6	161	548	El Paso Masonic Hospitalo Hotel Dieu, Sisters' Hosp.	Gen	NPAssn Church	50 100	79		205 431	1,103 3,220
Cisco, 4,868—Eastland Graham Sanitarium Ge	ı Indiv	22	5	4	26	564	Long Sanatorium Newark Conference Materni	У	Indiv	50	16	••	•••	57
Clarendon, 2,431—Donley Adair Hospital Ge Clarksville, 4,095—Red River	n NPAssn	20	13	8	152	442	Hospital	. Gen	Church Indiv Church	20 40 75	6 8 28	14 3	300	301 1,239 108
Red River County Hospital. Ge Cleburne, 10,558—Johnson	n County	37	6	3	35	358	Southwestern General Hosp. William Beaumont General		Corp	125	72	20	376	3,229
Cleburne Sanitarium Ge Clifton, 1,732—Bosque	n Indiv	14	4	5	94	366	Hospital*A		Army	700	409	7.	88	5,949
Goodall and Witcher Clinic- Hospital	n Part	10	4	4		274	Blake Hospital		Indiv Indiv	12 10	4 3	5 2	72 14	259 154
Coleman, 6,054—Coleman Overall Memorial Hospital Ge College Station, 2,184—Brazos	n CyCo	50	12	4	126	520	Floydada, 2,726—Floyd Floydada Hospital and Clinic	. Gen	Indiv	8	3	3	43	203
Agricultural and Mechanical College Hosnital	st State	125	33		•••	5,239	Fort Worth, 177,662—Tarrant All Saints Episcopal Hosp.		Church	75	63	12	574	2,785
C. L. Root Memorial Hosp Go		14	8	8	68	551	City and County Hosp.**  W. I. Cook Memorial Hosp.	. Gen Gen	CyCo NPAssn	168 35	135 30		1,102 119	5,616 1,330
Columbus, 2,422—Colorado John F. Bell Memorial Hosp. Ge Commerce, 4,699—Hunt		10	4	4	33	244	Ethel Ransom Memorial Hospital	. Gen	Part	25	21	4	12	7,456
Allen Clinic-Hospital Go Leberman Hospital Go Conroe, 4,624—Montgomery	n Indiv n Indiv	10 8	6 4	4 7	63 56		Fort Worth Children's Hos pital [©]		NPAssn	35	21		•••	389
Mary Swain Sanitarium Ge	n Part	18 42	6 18	4 6	12 98	300 1,032	Hospital** St. Joseph's Hospital**	. Gen	Church Church	215 212	148 135		1,076 933	5,066 6,413
Montgomery County Hosp. Go Corpus Christi, 57,301—Nueces Fred Roberts Memorial Hos-					691		United States Public Health Service Hospital Fredericksburg, 3,544—Gillespie	. Drug	USPHS	1,005	530			941
pital 40	n Corp	55 32 85	37 16 62	4	43	2,030 1,133 4,027	Fredericksburg Hospital an Clinic	İ	Corp	13	5	4	91	393
Corsicana, 15,232—Navarro Corsicana Hospital	n NPAssn	20	5 10	2	17	270	Keidel Memorial Hospital an Clinic Freeport, 2,579—Brazoria	i . Gen	Indiv	12	5	5	30	225
Navarro Clinic Hospital G Physicians and Surgeons Hospital G		20 53		12	191		Freeport Hospital Freer, 2,346—Duval		NPAssn	14	10	5	101	723
Crockett, 4,536—Houston Butler Hospital G		130	50		15		Thomas-Spann Hospital Gainesville, 9,651—Cooke		Part	12	5	5	90	201
Jim Smith Memorial Hospital and Crockett Clinic G Crystal City, 6,529—Zavala		16	8	2	73	538	Gainesville Sanitarium Galveston, 60,862—Galveston Galveston State Psychopath		NPAssn	30	13	10	92	8-4
Crystal Hospital G	n Indiv	10	5	3	34	270		. Ment	State	100	90	••	•••	431

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	dmis.	
Hospital for Crippled and Deformed Children	Unit	of John S	Sealy ]	Hospit	al			
Negro Hospital St. Mary's Infirmary+40	Unit	or source	seary 1	105pt	ai	779	8,655	- }
U. S. Marine Hospitala Georgetown, 3,682—Williamson	Gen	Church USPHS	200 210	101 169	25	750	3,221 2,5 <b>1</b> 4	
Martin Hospital Gilmer, 3,138—Upshur Flywood Santharia	Gen	Indiv	20	5	4	30	261	- 1
win oud dimetrium .	Lion	Indiv	16	6	4	47	364	
Oak Lawn Sanitarium	Gen Gen	Part Part	11 19	4 9	3 6	103 198	450 961	1
Gladewater Hospital	Gen	Indiv	10	6	4	43	265	- }
Gonzales, 4,722—Gonzales	Gen	Indiv	20	9	3	41	571	
Holmes Hospital	Gen	Corp	25	5	3	30	400	
Goose Creek Hospital Lillie and Duke Hospital	Gen	Corp Part	12			ata su		
Gorman, 1,157—Eastland Blackwell Sanitarium			18	7	6	122	465	- [
Graham, 5,175—Young Graham Hospital		Part	30	20	3	405	1,500	-
Greenville, 13.195Hunt		NPAssn	18	11	5	180	852	į
Dr. E. P. Becton's Hospital. Goode and Philips Hospital.	Gen	Indiv Part	16 10	3 7	4	99	366 264	1
Dr. Joe Becton's Hospital Groesbeck, 2,272—Limestone		Indiv	20	8	3	44	564	
Dr. Cox's Hospital Hallettsville, 1,581—Lavaca	Gen	Indiv	8	2	5	43	175	
Renger Hospital	Gen	Indiv	12	5	3	24	320	
Valley Baptist Hospital	Gen	Church	50	22	10	140	1,028	
Haskell, 3,051—Haskell Haskell County Hospital	Gen	County	25	12	5	72	1,096	
Henderson, 6,437—Rusk Henderson Memorial Hosp	Gen	Corp	39	16	9	105	1,072	
Hereford, 2,584—Deaf Smith Deaf Smith County Hosp	Gen	County	22	5	6	138	310	
Hillsboro, 7,799—Hill Boyd Sanitarium		Indiv	23	6	3	48	403	
Houston, 384,514—Harris	OCL	111017	2.4	Ü	ű	***	405	
Autry Memorial Hospital- School	Unit	of Houston	n Tub	erculo	sis	Hospi		
Dr. Greenwood's Sanitarium Heights Clinic-Hospital		Corp Corp	40 40	28 19	7	328	165 1,394	
Hermann Hospital*+** Houston Eye, Ear, Nose and	Gen	NPAssn	236	125	40	628	4,085	
Houston Eye, Ear, Nose and Throat Hospital	ENT	Corp NPAssn	24 50	10 20	·. 8	92	1,118 1,004	
Houston Tuberculosis Hosp.	TB	CyCo	172	156			333	1
Jefferson Davis Hosp.****.  Memorial Hospital**	Gen	CyCo Church	478 195	310 170	34 20	2,325 1 1,143	6,777	
Methodist Hospital+Ao Montrose Clinic	Gen	Church Indiv	122 40	99 28	12	560	3,846 205	
Park View Hospital	Gen	Corp	30	14	6	105	931	
St. Joseph's Infirmary ** O Southern Pacific Hospital **	Gen Indus	Church NPAssn	341 120	292 70	80	3,946	1,645	
Turner Urological Institute	Urol	Part	16 27	10 17	 5	103	423 771	Ì
Wright Clinic and Hospital.  Jackshoro, 2,368—Jack		Indiv						
Jacksboro Hospital Jacksonville, 7,213—Cherokee		Part	11	4	4	95	307	
Nan Travis Memorial Hosp. Jasper, 3,497—Jasper	Gen	NPAssn	75	43	9	199	2,609	
Hardy-Hancock Hospital Richardson Hospital	Gen Gen	Part Indiv	24 15	12 8	4	20 78	360 473	
Kelly Field,Bexar		Army	82	43			1,777	
Station Hospital Kenedy, 2,891—Karnes		_			4	105	870	1
Kenedy Clinic and Hospital. Kermit, 2,584—Winkler		Corp	28	õ	*	100	GIN	
Robinson-McClure Clinic Hos- pital	Gen	Part	12	5	4	104	618	1
Kerryille, 5,572—Kerr Kerryille General Hospital		NPAssn	20	6	4	26	384	١,
trammilla Stata Sanatorium	T25	State Indiv	178 20	174 18	 	•••	1,507 24	[
Mountain View Sanatorium.  Sunnyside Sanatorium	TB TB	Indiv	20	16			44	١ '
Kilgore, 6,708—Gregg Kilgore Memorial Hospital.		Part	21	10	7	140	570	]
Kingsville, 7,782—Kleberg Kleberg County Hospital		County	36	17	6	59	617	:
Knox City, 1,127—Knox Knox County Hospital	Gen	County	20	12	Ť	135	732	
Knox County Hospital		Corp	45	14	5	111	720	]
La Grange Hospital		Indiv	20	6	G	208	56G	]
Lamesa General Hospital	Gen	Indiv	12	4	4	119	336	İ
Rollins-Brook Hospital		Part	21	15	6	125	928	
Laredo, 39,274-11 CDO	Gen	Church	75	26	s I	215	1,370 177	1
Station Hospital	Gen	Army	37	б	1	*		I
Federal Correctional Institu	Inst	USPHS	26				622	
tion			Key	to sy	mb	ois and	d abbr	ivs

TEXA	SContinued
~ +34343	OCONTINUED

TEXA	SConti	nued		,
Hospitals and Sanatoriums	Service Ownership or Control	<u>s</u>	Average Census † Bassínets	Number of Births Admis- sions †
Legion, 100-Kerr		Bed		Nun Birt Adm slon
Veterans Admin. Facility. G. T. Levelland, 3,091—Hockley	B Vet	201 218	239 189 .:	1,192 385
Phillips-Dupre Hospital Go Liberty, 3,087—Liberty Mercy Hospital Go Littlefeld of the Littlefeld en Part	10	7 5	146 661	
			16 12	197 1,201
Littlefield Hosp. and Clinic. Go Payne-Shotwell Hospital and Clinic	en Part en Part	25 22	12 5	186 800
Livingston Hospital		16	11 8 5 2	193 1,365 75 520
I nothart. 5,018—Caldwell Ge			6 2	24 222
Throat Hospital El Markham-McRee Memorial	NT NPAss	sn 25	з.,	1,000
Hospital Ge Lubbock, 31,852—Lubbock	n NPAss	sn 35	10 8	164 753
Lubbock Sanitarium • Ge St. Mary of the Plains Hosp. Ge	n Corp n Church	83 1 30	54 15 23 6	183 3,129 271 1,584
West Texas Hospital Ge	n Corp	60	35 12	357 2,971
Angelina County Hospital Ge			50 5	360 2,189
· son		12	5 3	44 352
Heath 1100p Olinic Ger Marfa, 3,805—Presidio Station Hospital		15	4 2	53 270
Station Hospital	n Army n Indiv	46 28	17 2 14 2	19 464 18 525
tarium Bath House and	u may	28	14 2	لدل 16
Orthopedic Crippled Children's	it of Buie-A	Allen Hos	pital	
Hospital Ort Torbett Clinic and Hospital Ger	h NPAssi 1 Corp	1 40 42	28 ·· 23 ·4	451 82 1,432
Marshall, 18,410—Harrison Kahn Memorial Hospital Gen	n NPAssr	35	12 5	176 060
Texas and Pacific Railway Employees Hospital Ind	lus NPAssı	n 105	44	1,966
Mathis, 1,950—San Patricio  Mathis Hospital Gen	Indiv	11	6 4	56 342
McAllen, 11,877—Hidalgo McAllen Municipal Hosp Gen	City	65	20 12	162 1,061
McKinney, 8,555—Collin McKinney City Hospital. Gcn	City	65	26 10	229 1,391
Memphis, 3,869—Hall Memphis Hospital Gen		15	5 2	33 283 71 743
Odom-Goodall Hospital Gen Mercedes, 7,624—Hidalgo		14	8 4	94 429
Mercedes General Hospital Gen Meridian, 1,016—Bosque			7 6	41 191
Holt Hospital and Clinic Gen Mexia, 6,410—Limestone	Indiv Indiv	10		13 316
Brown Memorial Hospital., Gen Midland, 9,352—Midland		17	-	E0 400
Ryan Hospital-Clinic Gen Western Clinic Hospital Gen Wingerd Wolla 6 202 Parlo Pinto	Indiv Part	11 13		0s 3co
Mineral Wells, 6,303—Palo Pinto Nazareth Hospital Gen	Church	40	i5 6 1	06 929
Mt. Pleasant, 4,528—Titus Taylor Hospital and Clinic Gen Nacogdoches, 5,687—Nacogdoches	Part	12		75 161
City Memorial Hospital Gen Navasota, 6,138—Grimes	City	42 2		28 1,432
Brazos Valley Sanitarium Gen New Braunfels, 6,976—Comal	Corp			)g 750 17 453
New Braunfels Hospital Gen Newgulf, —Wharton	Indiv	12	734	17 120
Texas Gulf Sulphur Company Hospital Gen	NPAssn	23	g 3 4	8 452
Odessa, 9,573—Letor Headlee Hospital Gen	Indiv Part	25 19 14	5 10 24 5 4 9	6 1,031 S 360
Wood Hospital Gen Olney, 3,497—Young Hamilton Hospital Gen	City	-	2 7 9	
Orange 7 479()range	Indiv	30 19	5 23	3 1,019
Frances Ann Lutcher Hosp. Gen Paducah, 2,677—Cottle W. Q. Richards Memorial	To Alice	20 5	8 40	3 410
Palestine, 12.144—Anderson	Indiv NPAssu	20 2 75 31		994
Missouri Pacific Lines Hosp. Indus Palestine Sanitarium Gen Pampa, 12,895—Gray	Corp	23 8	5	521
Pampa, 12,895—Gray Worley Hospital	Indiv	45 30	11 400	للمسهة
George Griffiths Memorial	of Sanitariu	m of Par	is 7 154	1,155
Lamar County Hospital Gen	Church	35 35 65 14 72 62	8 100 7 170	971 2,254
Sanitarium of Parisav oth	Corp Part	21 10	6 257	511
Passall 2 ICI Frio	Indiv	10 3	2 25	140 170
Goodnight Clinic Hospital Gen	Indiv	10 3	2 23	• · ·
1. 17-n- to am mane 1071				

TEXA	AS—C	Continu	ed				ļ	TEXAS—Continued	
					572	ţ		Type of service  Ownership or Control  Beds  Control  Bassinets  Bassinets	
	Type of Service	rnership Control	-	Average Census †	Bassinets	Number of Births	÷÷.	Type of Service Ownership or Control Beds Consus † Bassinets Number of Births	Admis- sions †
Hospitals and Sanatoriums	l'ypo	Own or Co	Beds	Yer	3ass	HT.	Admis- sions t	Hospitals and Sanatoriums Service or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussie or Counsell Bussi	Adı Sou
Pecos, 4,855-Reeves								Sugar Land. 1.840—Fort Bend	897
Camp and Camp Hospital Phillips, 2,500—Hutchinson	_	Indiv	20	6	4	70	376	Sulphur Springs, 6,742—Hopkins	400
Pantex Hospital Pittsburg, 2,916—Camp	Gen	NPAssn	12	4	3	94	319	Sweetwater, 10,367—Nolan	
Pittsburg Medical and Sur- gical Hospital	Gen	Corp	20	4	6	41	232	Taylor, 7,875-Williamson	,633
Plainview, 8,263—Hale Plainview Sanitarium and	_								553 835
Clinico	Gen	Part	70	33	11	183	1,440	Tengue, 3,157—Freestone	233
St. Mary's Hospital, Gates	Con	Church	150	90	90	708	3,696	Temple, 15,344-Bell	200
Memorial Prairie View (Hempstead P.O.),	10-T	aller	150	20	20	103	0,000	Gulf, Colorado and Santa Fe Hospital Mark Indus NPAssn 78 36 1	,635
Prairie View State College Hospitalo	Gen	State	52	21	6	37	815	Kings Daughters Hosp.**. Gen NPAssn 110 101 8 131 3	3,194 1,031
Quanah, 3,767—Hardeman Memorial Hospital	Gen	County	40	15	8	88	1,072	Terrell, 10,481—Kaufman	662
Ranger, 4,553—Eastland City-County Hospital	Gen	CyCo	30	23	5	83	824	Holton-Johnston Clinic Hos-	
West Texas Hospital Raymondville, 4,050—Willacy	Gen	Corp	18	12	3	41	489	pital	291 1941
Raymondville Hospital Refugio, 4,077—Refugio	Gen	Part	11	3	3	63	233	Terrell State Hospital Ment State 2,674 2,684 Texarkana, 17,019—Bowie	359
Refugio County Hospital	Gen	Church	45	12	6	54	591	Federal Correctional Insti-	110
Rio Grande City, 2,283—Starr Station Hospital	Gen	Army,	30	7	2	12	268	Texarkana Hospital Gen NPAssn 60 34 8 214 1	140 430,1
Robstown, 6,780—Nucces Robstown Hospital	Gen	Corp	14	10	4	94	1,629	Texas City, 5,748—Galveston Danforth Clinic Hospital Gen Indiv 8 3 Estab. 19	941
Roscoe, 1,166—Nolan Young Hospital		Indiv	25	8	7	98	1,147	Tyler, 28,279—Smith Bryant Clinic and Sanit Gen Part 15 14 4 96 1,	
Rosenberg, 3,457—Fort Bend	_			7		102	583	Mother Frances Hospital Gen Church 62 37 18 319 1	1,666
Fort Bend Hospital Rotan, 2,029—Fisher		Corp	24		5			Uvalde, 6,679—Uvalde Merritt Hospital Gen Indiv 8 6 4 50	375
Callan Hospital Rusk, 5,699—Cherokee	Gen	Indiv	17	11	5	96	719	Vernon, 9,277—Wilbarger Christ the King Hospital Gen Church 25 6 3 60	407
Rusk State Hospital San Angelo, 25,802—Tom Green	Ment	State	2,415	2,435	••	•••	370	Moore Brothers' Hospital Gen Indiv 15 9 3	504 769
Clinic-Hospital▲	Gen	Corp	40	30 17	12 5		2,040	Victoria, 11,566-Victoria	
St. John's Hospital Shannon West Texas Memori	ลโ	Church	25				1,011	De Tar Memorial Hospital Gen Indiv 20 19 6 193 1. Victoria Hospital Gen Corp 22 14 8 106	1,065 739
Hospital▲○ San Antonio, 253,854—Bexar	Gen	NPAssn	100	69	15	407	4,057	Waco, 55,982—McLennan Hillerest Memorial Hosp. ▲ Gen Church 87 48 12 317 2	2,263
Central Clinic Hospital Grace Lutheran Sanatorium	. Gen	Indir	10	8	4	36	212	Joanna McClelland Memorial	
for Tuberculosis		Church	$\frac{36}{31}$	31 22	·· 5	100	105	Providence Hospital △ · · · · Gen Church 110 70 15 437 2	1,706 2,912
Medical Arts Hospital Medical and Surgical Memoria	al _	Corp					1,739	Veterans Admin. Facility. Ment Vet 1,122 1,106 Waxahachie, 8,655—Ellis	663
Hospital*▲◇ Dr. Moody's Sanitarium		NPAssn Corp	100 50	84 34	15	699	4,848 158		651
Nix Hospital*▲ Phys clans and Surgeons	. Gen	Corp	145	103	24	490	5,174	Medical and Surgical Clinic. Gen Part 10 6 4 114	447
Hospitalo	. Gen	Corp	60	50	14	405	2,409	Wellington, 3,308—Collingsworth St. Joseph's Hospital Gen Church 20 3 4 119	623
Hospital*▲○		County					4,456	Wharton, 4,386—Wharton Oaney Valley Hospital Gen Corp 25 10 8 139	929
Saenz Clinic San Antonio State Hospital	. Ment	Indiv State	10 2,757	2,873	5	45	165 587	Wheeler, 848—Wheeler Wheeler Hospital Gen Part 14 4 3 130	459
Santa Rosa Hospital** Station Hospital (Brooks	. Gen	Church	289	206	32	1,047	9,142	Wichita Falls, 45,112-Wichita	
Field)		Army	35	11	••	•••	946	Wichita Falls Clinic-Hosp. + Gen Part 80 61 10 218 3	,204 ,419
Houston)*▲	. Gen	Army	1,200	636	23	352	11,250		761 1,149
Woodmen of the World War Memorial Hospital+4	· TB	NPAssn	150	97			118	Yoakum, 4,733—Lavaca	
Sanatorium, 1,040—Tom Green State Tuberculosis Sanat		State	1,000	875			1,928	Yorktown, 2,081—De Witt	875
San Marcos, 6,006—Hays Soldiers' and Sailors' Memor	ln1		·	•					160
Hospital Santa Anna, 1,661—Coleman		NPAssn	25	5	3	55	543	Related Institutions Almeda, 300—Harris	
Scaly Hospital	. Gen	Part	29	8	3	70	495	Keightley Hospital N&M Indiv 36 13	61
Sengraves, 3,225—Gaines Davidson Clinic-Hospital	. Gen	Part	12	8	4	77	469	Unights Complex Hospital Inst VD4 of to	130
Sealy, 1,800—Austin Sealy Hospital	. Gen	Indiv	g	4	2	61	366	Austin State School MeDe State 1,925 1,849	222
Seguin, 7,006—Guadalupe Seguin Hospital		NPAssr		5		65	438	Burkburnett, 2,814—Wichita Burkburnett Clinic Hosp Gen Part 4 2 4 65	97
Seminole, 1,761—Gaines Scroggie Hospital								Dallas, 204,734—Dallas	
Seymour, 3,328—Baylor		Indiv	10			56		Ennis, 7,087—Ellis	626
Baylor County Hospital Shamrock, 3,123—Wheeler		County	16	G	4	132	571	Ennis Municipal Hospital Gen City 20 G 3 125 Fort Worth, 177,662—Tarrant	491
Shamrock Clinic Hospital Shamrock General Hospital	- Gen	Part Indiv	14 25	5 9		101 60	424 435	Elmwood Sanatorium TB CyCo 62 60 Howard Sanatorium N&M Indiv 16 12	40 53
Sherman, 17,156—Grayson St. Vincent's Hospital4		Church		35		161		Hallettsville, 1,581—Lavaca Dufner Hospital Gen Indiv 8 2 2 6	53
Wilson N. Jones Hospitalo.	- Gen	NPAssu		45	8	168		Houston, 381,511—Harris	
Shiner, 1,520—Lavaca Dr. Wagner's Hospital	. Gen	Indiv	18	9	3	42	408	Huntsville, 5,105—Walker	57
Slaton, 3,587—Lubbock Mercy Hospital	. Gen	Church	50	16	6	75	563	Hutchins, 400—Dallas	,339
Snyder, 3,815—Scurry Snyder General Hospital	- Gen	Corp	24		5	95	623	City-County Convalescent Hospital	63
Spur, 2,136—Dickens Nichols Sanitarium	. Gen	Indly	20	9	5	65	377	McCamey, 2,595—Upton Cooper Hospital Gen Indiv 12 5 4 60	350
Stamford, 4,810—Jones Stamford Sanitarium	. Gen	Part	50	24	10		1,533	Mt. Vernon, 1,443—Franklin Crutcher Hospital	76
Stephenville, 4,768—Ernth Stephenville Hospital		NPAssi	n 25		3		1,248	Nixon, 1,835—Gonzales	149

TEXA	sc	ontinued	I				i	VERMONT	
		dio lo		e2 **-	<b>t</b> 3	0	(	de de de de de de de de de de de de de d	
Related Institutions	lype of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number Births	Admis- sions †	Hope of Scrylee Of Scrylee Or Control or Control or Control Beds  Average Census †  Bassinets  Number of Births	Admis- sions †
Poteet, 2,315—Atacosa Shotts Memorial Hospital San Antonio, 253,854—Bexar		Indiv	9	2	4	46	142	Bellows Falls, 4,326—Windham Rockingham General Hosp. Gen NPAssn 40 25 8 171 Bennington, 7,628—Bennington Henry W. Putnam Memorial	883
Salvation Army Women's Home and Hospital Southton, 89—Bexar	Mat	Church	35	6	18	88	124	Henry W. Putnam Memorial Hospital Memorial Gen NPAssn 96 66 25 266 Brattleboro, 9,622—Windham Brattleboro Memorial Hos-	1,746
Bexar County Tuberculosis Colony Texon, 1,200—Reagan		County	75	70	••	•••	61	pitnlao Gen NPAssn 75 63 12 212 Brattleboro Retreat Ment NPAssn 800 767	2,300 363
Texon Hospital Waco, 55,982—McLennan Waco State Home Hospital.		NPAssn State	10 30	2 15	3	11	118 896	Bishop DeGoesbriand Hos- pital*** Gen Church 125 96 15 381 Green Mountain Sanat IntMed Indiv 8 4	2,859 100
	UTA	ਸ						Lakeview Sanatorium N&M Corp 25 7	37 6,531
	011				60	o		Station Hospital	1,215
	o of ice	ersh ontr	_	age sus t	Bassinets	iber hs	is-	Hardwick Hospital Gen NPAssn 12 6 4 20 Middlebury, 2,123—Addison	161
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Вая	Number Births	Admis- síons †	Porter Memorial Hospital [*] Gen NPAssn 45 15 10 112 Montpeller, 8,006—Washington	894
American Fork, 3,333—Utah American Fork Community								Heaton Hospital Gen NPAssn 70 52 12 216. Morrisyille, 1,967—Lamoille	2,498
Hospital		City	20	2	15	220	442	Copley Hosp tai	561
Bingham Canyon Hospital.  Brigham, 5,641—Box Elder	Gen	Indiv	40	19	6	58	545	Orleans County Memorial Hospital A	773
Cooley Memorial Hospital Cedar City, 4,695—Iron		NPAssn	25		12	225	839	Pittsford, 576—Rutland Vermont Sanatorium TB State 85 74	123
Iron County Hospital Coalville, 949—Summit	Gen	County	43	23		230	1,023	Proctor, 2,184—Rutland Proctor Hospital Gen NPAssn 29 9 7 47	475
Summit County Hospital Fort Douglas, 1,071—Salt Lake	Gen	County	12	6	7	54	261	Randolph, 1,988—Orange Gifford Memorial Hospital Gen NPAssn 53 28 10 100	880
Station Hospital	Gen	Army	70	54	••	•••	894	Rutland, 17,082—Rutland Rutland Hospitalo Gen NPAssn 140 93 20 425	3,002
Uintah and Ouray Agency Indian Hospital	Gen	IA	30	19	7	56	512	St. Albans, 8,037—Franklin St. Albans Hospitallo Gen NPAssn 50 40 8 175	1,611
Heber, 2,748—Wasatch Heber Hospital		Part	14	7	5	68	259	St. Johnsbury, 7,437—Caledonia  Brightlook Hospital Gen NPAssa 55 33 12 118 St. Johnsbury Hospital Gen Church 30 12 5 59	1,074 454
Kanab, 1,365—Kane Kanab Hospital		Indiv	9	5	5	81	263	Springfield, 5,182—Windsor Springfield, Hospital	1,211
Lehi, 2,733—Utah Lehi Municipal Hospital		City	15	5	10	92	210	Waterbury, 3,074—Washington Vermont State Hospital for	310
Logan, 11,868—Cache Cache Valley General Hosp.		NPAssn	42	15	12	252	835	White River Junction, 2,271—Windsor	1,158
William Budge Memorial  Hospital		NPAssn	67	38	20	397	1,304	Veterans Admin, Facility A. Gen Vet 188 123 Windsor, 3,402—Windsor Windsor Hospital	334
Moab, 1,084—Grand Grand County Public Hosp		County	16	10	7	79	304	Windsof Rospital Windsof Good—Chittenden Fanny Allen Hospital C Gen Church 75 63 14 160	1,391
Ogden, 43,688—Weber			~	150	oe.	1,450	5 460	Related Institutions	
Hospital**	, Gen	Church	214	72		1,430	102	Brandon, 2,979—Rutland Brandon State School MeDe State 398 377	35
Sanatorium		State	96 35	12		45	343	Pittsford, 576—Rutland Caverly Preventorium TB NPAssn 77 68	146 139
Park City Miners' Hosp		NPAssn	30		12	188	601	Windsor, 3,402—Windsor Vermont State Prison Hosp. Inst State 12 5	133
Payson City Hospital		NPAssn	56		12		1,165	VIRGINIA	
Price City Hospital		City		1,067			365	or of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of	
Utah State Hospital	. Ment . Gen	State NPAssn	50	27	15	488	1,360	Type of Service Ownership or Control  Beds Average Census † Bassinets	Admis- sions
Richfield, 3,584—Sevier	. Gen	Indiv	20	8	5	105			
St. George, 2,434—Washington D. A. McGregor Hospital		NPAssn	27	. 1	3 5	122		Gen NPAsen 60 37 6 47	1,113
Salina, 1,616—Sevier	. Gen	Indiv	17	(	6	57	242	Gen APASSO 101 5, 22	3,451 355
Salt Lake City, 149,934—But L	HEC	Church	380	279	70	2,102	9,639	Gen Corp 21 14 6 18 Bristol, 9,765—Washington	
Day Saints Hospital		Church Church	200 25	19	•	• • •	5,166 68	King's Mountain Memorial  Rospital	2,021
Primary Children's Hospital		Church	150	12	7 14	389	4,292	Brook Hill, 50—Henrico TB City 280 210	175 123
Salt Lake County General	. Gen	County	237	138	21	532	4,036	Burkeville, 638—Nottoway Piedmont Sanatorium TB State 269 192	523
Shriners Hospital for Chip-	Orth	NPAssn Vet	20 158	20 13:				Contract a Structure and State 400 379	162
Veterans Admin. Facility		Indiv	17		3 5	30	200	Martha Jefferson Hospital Gen NPAssn 50 25 10 220 1	
Hughes Memorial Hospital		NPAssn	20		9 8	152	465	and Sanitarium Gen NPASSI 50 054 11	
Valley Hospital	Gen	TAT STOCK						Dital*+A0	234
Related Institutions American Fork, 3,333—Utah	35-0	a State	585	50	G			100 5 1,103 3	£570
Utah State Training School		e Brace	-00					pital+40 Gen NPAssn 133 100 5 17	Ø
Cottonwood Stake March	Mat	Church	26		0 24			Dickenson County 12 3 22	11.3
Barre, 10,909 Washington	Gen	NPAssn State	60 47	A	0 15		64	Coepura Hospital	
Barre City Hospital- Washington County Sanat			к	εy to	sym	ibols a	nd abb	reviations is on page 1071	

VIRGI	NIA-	-Contin	ued					VIRGINIA—Continued
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions †	Service Ownership or Control Beds Average Census † Bassinets Number of Bitths Admis- sions †
L , ' , '	_							Richmond, 193,042—Henrico
	Gen	Indiv	15	12	4	36	442	Dooley Hospital Unit of Med. Col. of Va., Hosp. Division
Danville, 32,749—Pittsylvania Hilltop Sanatorium	Gen	NPAssn NPAssn	25 50	16 40	2	15	620 75	Grace Hospital+4
Memorial Hospital Farmville, 3,475—Prince Edward	Gen	NPAssn	170	101	24	561	5,610	Hospital Division*+** Gen State 881 428 94 1,040 11,635 Memorial Hospital Unit of Med. Col. of Va., Hosp. Division
Southside Community Hos-	Gen	NPAssn	46	42	10	105	1,700	Retreat for the Sick Gen NPAssn 90 72 10 503 3,371
	Gen	Army	50	31			1,177	Richmond Community Hosp. Gen NPAssn 30 17 4 66 431 St. Ellzabeth's Hospital+A Gen Corp 50 46 . 1 1,608 St. Luke's Hospital+A Gen Corp 85 66 20 305 2,670
	ity Gen	Army	136	67	4	43	2,103	St. Luke's Hospital+4 Gen Corp 85 66 20 305 2,670 St. Philip Hospitalo Unit of Med. Col. of Va., Hosp. Division Sheltering Arms Hospital+4. Gen NPAssn 78 51 17 170 1,342
Station Hospital Franklin, 3,466—Southampton	Gen	Army	139	61	••	•••	1,030	Stuart Circle Hospital**Gen Corp 94 85 18 397 3,187  Tucker Hospital*
Raiford Hospital Fredericksburg, 10,066—Spotsylv	rania	Indiv	35	20	6		1,099	Westbrook Sanatorium N&M Corp 135 88 303 Roanoke, 69,287—Roanoke
Mary Washington Hospital. Front Royal, 3,831Warren	Gen	NPAssn	75 0-	87			3,192	Burrell Memorial Hosp.A Gen NPAssn 44 21 5 93 750 Gill Memorial Eye, Ear and Throat Hospitalt ENT NPAssn 25 6 1,095
Front Royal Hospital Grundy, 1,476—Buchanan		Corp Indiv	25 50	8 44	4 6	28 65	331 2,148	Throat Hospital+44
Grundy Hospital	7	NPAssn	91	62			2,558	Roanoke City Tubercular SanatoriumTB City 60 40 55
Dixle Hospital A	ım		-					Roanoke Hospital Gen NPAssn 97 66 14 483 3,051 Shenandoah Hospital Gen Corp 50 28 8 258 1,931
pital  Hopewell, 8,679—Prince George	Gen	NPAssn	141	114	11	438	4,851	Veterans Admin. Facility A Ment Vet 1,195 1,063 797 Saltville, 2,650—Smyth
John Randolph Hospital Hot Springs, 1,500—Bath		Corp	20	9	6	116	482	Mathieson Hospital Gen NPAssn 16 5 5 26 373 South Boston, 5,252—Halifax
Community House Kecoughtan, 1,900—Elizabeth Ci	ty	NPAssn	14	5	4	22	197	Haleyon Hospital       Gen       Corp       25       12       6       37       443         South Boston Hospital       Gen       Indiv       34       15       8       66       721
Veterans Admin. Facility. Langley Field, Elizabeth City	7	Vet	534	399	••		3,539	Staunton, 13,337—Augusta DeJarnette Sanatorium Unit of Western State Hospital Kings Daughters Hospital*Gen NPAssn 78 45 10 249 1,633
Station Hospital		Army	125	61 6	5	99 40	2,690 399	Kings Daughters Hospital Gen NPAssn 78 45 10 249 1.633 Western State Hospital Ment State 2,459 2,458 1,086 Stonega, 1,650—Wise
Lebanon General Hospital Leesburg, 1,698—Loudoun Loudoun County Hospital		Part County	18 28	17	5 6	99	686	Stonega, 1,000-Wist Stonega Hospital
Lexington, 3,914—Rockbridge Stonewall Jackson Memorial		County	20		Ü	•••	000	Stuart Hospital
Hospital Lorton, 60—Fairfax		NPAssn	57	28	8	92	1,492	Lakeview Hospital Gen Corp 65 36 8 131 1,384 Virginia General Hospital Gen NPAssn 25 8 5 46 344
District of Columbia Reform	na- See W	ashington	, p.	σ.				University,—Albemarle University of Virginia Hosp See Charlottesville, Virginia
Luray, 1,511—Page Page Memorial Hospital	Gen	NPAssn	18	7	7	48	650	Waynesboro, 7,373—Augusta Waynesboro Community
Lynchburg, 44,541—Campbell Guggenheimer Memorial Hos	Unit c	of Marshal	l Loc	ge Me	mori	al He	osp.	Hospital
pital		City						Bell Hospital
Virginia Baptist Hospital	Gen Gen	NPAssn Church	93 100	80 46	12 22	239 281	2,999 1,732	Winchester, 12,095—Frederick Winchester Memorial Hos- pital ^A 0
Lynnhaven, 250—Princess Anne Tidewater Memorial Hosp Marion, 5,177—Smyth	тB	NPAssn	50	45	••		67	pitalA0
Homeland Hospital Lee Memorial Hospital	. Gen	Indiv NPAssn	14 30	9 20	3 4	44 38	502 927	Related Institutions
Martinsville, 10,080—Henry	. Ment	State :	1,347	1,250	••	•••	389	Beaumont, —Powhatan Virginia Industrial School
Shackelford Hospital Nassawadox, 1,000—Northampt	Gen on	Indiv	53	30	12	132	1,701	for Boys
Northampton-Accomac Me- morial Hospital Newport News, 37,067—Warwick Elizabeth Buxton Hosp.+40	Gen	Counties	52	21	7	72	1,213	Lynchburg State Colony MeDe State 1,673 1,660 323 Medical Center Hospital Unit of Lynchburg State Colony
Kirereida Hornitalao	Con	Indiv NPAssn	90 100	85	18 16	561		Falls Church, 2,576—Fairfax Gundry Home and Training School for Feebleminded. MeDe Indiv 80 63 8 Lawrenceville, 1,703—Brunswick Loulie Taylor Letcher Memorial Hospital Inst Church 18 2 200
Whittaker Memorial Hosp Norfolk, 144,332—Norfolk Charles R. Grandy Sanat	Gen	NPAssn	44	18	6		1,118	Lawrenceville, 1,703—Brunswick Loulie Taylor Letcher Me-
Henry A. Wise Memorial Hospital Hospital of St. Vincent de	TEO	City City	145 20	_	••		148	matemstile, 10,000-rienty
Hospital of St. Vincent de Paul*** Leigh Memorial Hospital*	. Gen	Church	225	154	25	714	7,076	Richmond, 193,042—Henrico
Leigh Memorial Hospital McCoy-Stokes Hospital	Gen ENT	NPAssn Part	72 11	37 4 39	22	262	1,634 433	City Home
McCoy-Stokes Hospital Norfolk Community Hosp. A Norfolk General Hospital*A Norton, 4,000—Wise Norton, 4,000—Wise	. Gen	NPAssn NPAssn USPHS	54 278 360	210 274	16 55	195 1.105	1,298 9,559 3,869	State Farm Hospital Inst State 60 61 410 Sweet Briar, 200—Amherst
	. Gen	Indiv	30	15	6	48	717	Sweet Briar College In- firmary Inst NPAssn 20 3 206
Lee General Hospital		Corp	32	23	2	83	1,094	WASHINGTON
Petersburg, 30,631—Dinwiddie Central State Hospital Medical Center Hospital	. Ment	State :	3,521 Stat	3,730 e Hosi	nital	•••	913	ts ts
refershire Hospitaleo	. Gen	MPASSI	72 300	71 235	7	245	2,821 114	Hospitals and Indiana state of Control Dassinets  Number of Dirths  Admis- slons t- slons t- slons t- slons t-
Petersburg State Colony Portsmouth, 50,745—Norfolk Kings Daughters Hospital		•NPASSD		98	16	449		Abardon 1888 Crara Harber
Parrish Memorial Hospital*  Pulashi 8 702 Pulashi	• Gen	Navy Corp	1,069 54	659 <b>31</b>	21 16	426 189	1,600	Aberdeen, 18,846—Grays Harbor St. Joseph's Hospital Gen Church 78 74 24 569 3,400 American Lake 800—Ploree
Norfolk Naval Hospital*A. Parrish Memorial Hospital*A Pulaski, 8,792—Pulaski Pulaski Hospital* Radford, 6,990—Montgomery	. Gen	Corp	70	49	10		2,200	American Lake, 800—Pierce Veterans Admin. Facility Ment Vet 710 707 401 Ameortes, 5,875—Skagit
St C	. Gen	NPAssn Indiv	33 46	41	5 3	Estab	. 1941 375	Anacortes Hospital Gen Corp 24 10 5 92 621
Ricl C M		Corp Indiv	101 75	66 51	10 8	175 79	2,635 1,939	Suburban Hospital         Gen         Corp         40         18         10         143         759           Bellingham, 29,413—Whatcom         St. Frances Hospital         Gen         Indiv         17         14         4         65         240
		A-411						reviations is on page 1071

### WASHINGTON—Continued Bassinets Ownershij or Contro Type of Service Average Census t Number of Births .1dmls. sions t Hospitals and Sanatoriums Beds St. Joseph's Hospital* Gen St. Luke's General Hosp. C. Gen Whatcom County Hospital, Gen Bremerton, 15,134—Kitsap U. S. Naval Hospital* Gen Centralia, 7,414—Lewis St. Luke's Hospital and Sweet Clinic Gen Chehalis, 4,557—Lewis St. Helen's Hospital Gen Chewelah, 1,565—Stevens St. Joseph's Hospital. Gen Colfax, 2,553—Whitman St. Ignatius Hospital. Gen St. Ignatius Hospital. Gen Church 12 2,143 2,257 1,007 NPAssn 76 County Navy g 2.858 Part Church Church Church 1,369 Church 1,045 Indiv Indiv Indiv County ... NPAssn 72 21 2,841 2,745 Church Indly Army 3,208 2.955 2.683 -Jefferson Army Indiv County Leavenworth, 1,608—Chelan Cascade Sanitarium ..... Gen Longview, 12,855—Cowlitz Cowlitz General Hospital... Gen Longview Memorial Hospital Gen NPAssn 1.096 NPAssn 12 1,601 1,863 Corp Mason City, 3,000—Okanogan Mason City Hospital...... Gen Medical Lake, 2,114—Spokane Eastern State Hospital^{†©}... Ment Monroe, 1,550—Snohomish Snohomish County Hospital Corp 17 19 State 2,057 1.903 County Indiv Indiv . Gen IA Gen NPAssn Gen Olympia, 13,254—Thurston St. Peter's Hospital* Pasco, 3,913—Franklin Our Lady of Lourdes Hospital* Port Angeles, 9,409—Clallam Davidson and Hay Hospital Gen Port Angeles General Hospital* gen Davidson and Factorial Hospital* Gen Davidson Gen Davidson Gen 2.585 Church 1,291 Church 1.161 Indiv NPAssn 53 12 1.716 Indiv Gen 1,162 Gen Church N&M Gen Indiv Part Renton, 4,485—king Bronson Memorial Hospital Gen Richmond Highlands, 600—King Firland Sanatorium and Isolation Hospital⁴⁰ .... TB Indiv 70 ... City Iso Seattle, 368,302—King Ballard General Hospital... Gen Children's Orthopedic Hospital+A0 Orth Chib. Vicasital NPAssn 1,264 orthopedic Hospital Cobb Hospital Surg ... NPAssn Indiv 4,560 Church Wash. ds, 16 Highlan Richmond King County Hospital, Unit No. 1 (Harborview)**+\$\(^{\text{AO}}\). Gen King County Hospital, Unit No. 2 (Georgetown). King County Tuberculosis Hospital* Laurel Beach Sanatorium. TB Maynard Hospital* Meadows Sanatorium. N&M Medical and Dental Building Surgery Providence Hospital* Diseases TR Corp 695 13,204 County ... County County 76 28 Part 2,625 169 ÑPAssn 35 COTP Indiv 288 63 1,451 11,607 Church 83 .. Diseases ..... TR NPAssn

# *** * ****

	WASHI	NGI	CON-	Conti	nued			
	Hospitals and Sanatoriums	Type of	2 50		Beds	Census †	Number of	Admis- sions †
	Seattle General Hospital*A	Ger	2004	een T		වී දී 92 25		
	Station Hospital  Swedish Hospital**  U. S. Marine Hospital**  University of Washington  Health Content	Ger	a Arm	y ssn 2	20 70 5	2 27 74 133		175 7,997
	Virginia Mason Hosp *+*					22 34 33	678	1,812
	Memorial Hospital  Northern State Hospital+0.			sn :	35	16 7	157	5,512 798 500
1	Shelton, 3,707—Mason Shelton General Hospitala. Snohomish, 2,794—Snohomish			-	•	30 12	210	•••
	Aldercrest Sanatorium Snohomish General Hospital Snoqualmic Falls, —King	. TR	Coun Indiv		i9 !	58 9 5	102	36 414
	Soan Lake 622—Grant		Indiv	2	5	No da	ata suj	pplied
	Hospital	. Gen	State	2	4 1	2	•••	172
	South Bend, 1,771—Pacific South Bend General Hosp Spokane, 122,001—Spokane	. Gen	Part	2	0	6 6	CS	237
	Deaconess Hospital*Ao Edgecliff Sanatoriumo	. Gen	Churc State	h 18 14			818	5,717 127
1	Sacred Heart Hospital*Ao St. Luke's Hospital*Ao	Gen	Churc NPAss	h 300	27	0 46	1,259 1 444	
	Salvation Army Women's Hospital and Home Shriners Hospital for Crip-	Mat	Churc				87	112
1	pled Children	Orth Gen	NPAss Army	n 2.				133 883
	Stanwood, 600—Snohomish Stanwood General Hospital.		Indiv	14		в з	34	197
	Stellacoom, 832—Pierce U. S. Penitentiary Hospital Tacoma, 109,408—Pierce	Inst	USPH	S 8	5 6	·		714
1	Northern Pacific Beneficial Association Hospital Pierce County Hospital	Gen	NPAss County				69 345	2,522 3,750
1	St. Joseph's Hospital***  Tacoma General Hosp.**	Gen	Church NPAss	279	112	5 50	961	5,433 7,621
	Tacoma Indian Hospital₄		IA IA	146 40			•••	265 607
	Toppenish, 3,683—Yakima Yakima Sanatorium	TB	IA	37	31			80
	Vancouver, 18,788—Clark Clark County Hospital Clark General Hospital	Gen Gen	County NPAssr	1 46	27	12	a supr 218 1	lied ,257 ,705
	St. Joseph's Hospitalo Static Hearitala Walla II., III. W. W. P. St. P. II. III. III.	Gen	Church Army	84 132	<i>6</i> 9 68	20 4	37 1	,,003
		(len len TB	Church Vet Vet	85 293 127	62 256 123	15	312 2	,472 ,409 200
	Walla Walla General Hosp.▲ Wenatchee, 11,620—Chelan		Church	50	31	9	191 1	,141
	Central Washington Deaconess Hospital	Gen Gen	Church Church	50 54	47 40	14 17	282 2 331 1,	,002 ,410
	St. Anthony's Hospital* Yakima, 27,221—Yakima St. Elizabeth's Hospital* Yakima County Hospital	Gen	Church County	164 148	155 79	30 1. 13	051 5, 184 1,	152 £07
	Related Institutions							
	Chehalis, 4,857—Lewis State Training School for	inst	State	26	2	••		350
	•	en -	NPAsen	23	15		11 6	532
1		Эеп	Indiv	10	5	4	18	150
	School	feDe	State	1,400	1,400		••	37
	Roslyn, 1,743—Kittitas Roslyn Cle Elum Beneficial Company Hospital S	lee Cle	Elum, V	Yash.				
' i	Seattle, 368,302—King Florence Crittenton Home. I Freedlander's Sanltarium C	int Conv	NPAssn Part	25 11		16 		79 37
	Junior League Convalescent Home C Shadel Sanitarium A		NPAssn Corp	20 20		data	30 Alludus	d 7
5	pokane, 122,001—Spokane Florence Crittenton Home. M Rivercrest Hospital Is	nt.	NPA cen	14 75	•	0 9	3 2 . 12	
7	Tacoma, 100,405—Pierce Washington Minor Hospital G. White Shield Home		NPAssn NPAssn	14 20	11 9 i	ó 'i	. 2,11 2 J	5
2	digip, 100-Shonomish		IA	8	g :	3 7		
١	Tulalip Hospital	в	County	40	o .		-	
	Ctata PanitanIn		State	63	54	- ^		
3	akima, 1		indiv	17 23	29		• 1	
	Dopps SanatoriumTi	ც ]	(ndiv	<i>ي</i>				
, , ,	fines in an habe							

Key to symbols and abbreviations is on page 1071

WES	r v	IRGINI	Α				1	WEST VI	RGIN	IIA—C	ontii	nued			
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis sions †	Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admís sions †
Beckley, 12,802-Raleigh	ΗØ	08	Ã	άÖ	m	žĦ	Sic	Richwood, 5 051-Nicholas			50	10	6	24	≪ ∞ 390
Beckley Hospital▲ Pinecrest Sanitarium▲	Gen TB	Part State	160 454	127 450	15		5,499 434	McClung Hospital Sacred Heart Hospital Ronceverte, 2 665—Greenbrier	Gen Gen	Indiv Church	35 35	15	6	43	850
Raicigh General Hospital*  Bluefield, 20,641—Mercer	_	Corp	70	60	7	81	2,062	Greenbrier Valley Hosp AO Sistersville, 2,702—Tyler	Gen	Corp	50	23	3	33	1,348
Bluefield Sanitarium▲ . Providence Hospital	Gen Gen	Corp Indiv	110 25	93 14	10 3	218 18	4,555 467	Sistersville General Hospital South Charleston, 10,377—Kana	Gen wha	NPAssn	20	V	o da	ta sur	-
St Luke's Hospital St Mary's Hospital	Gen Gen	Corp Indiv	75 45	50 15	8	115 12	2,177 700	Dunn Hospital Spencer, 2,497—Roane	Gen	Indiv	30		12	77	658
Buckhannon, 4,450—Upshur St Joseph's Hospital Charleston, 67,914—Kanawha	Gen	Church	44	20	G	110	834	De Pue Hospital Spencer State Hospital		Indiv State	20 947	12 931	6	39	621 385
Charleston General Hosp +AO Kanawha Valley Hosp *AO	Gen Gen	NPAssn Corp	300 148	241 116	25 16	706 265	10,327 3,944	Triadelphia, 359—Ohio Ohio County Tuberculosis	mp	0	n.c	90			17
McMillan Hospital+▲○ Mountain State Memorial	Gen	Corp	88	60	12	261	2,901	Sanatorium Welch, 6,264—McDowell	TB Gen	County	3S 135	38 95	6	80	2 570
Hospital * O St Francis Hospital * * O .	Gen Gen	NPAssn Church	77 <b>1</b> 00	71 83	12 25	258 461	3 711 3,021	Grace Hospital▲ Stevens Clinic Hospital▲ Welch Emergency Hospital◇	Gen	Corp State	139 89	102 41	10 4	159 37	
Salvation Army Hospital Staats Hospital	Gen Gen	Church Corp	28 51	11 37	8 3	118 78	588 1,601	Weston, 8,269—Lewis General Hospital		Indiv	44	28	5	62	
Charles Town, 2,926—Jefferson Charles Town General Hosp	Gen	NPAssn	25	12	6	71	447	Weston City Hospital Weston State Hospital▲	Gen	Corp	30 1,744	13 1,728	7	35	612 5วง
Clarksburg, 30,579—Harrison St Mary's Hospital▲◊	Gen	Church	177	101	15	297	3,689	Wheeling, 61 099—Ohio Ohio Valley General Hos	_						
Union Protestant Hosp Ao Denmar, 100—Pocahontas		NPAssn	52	38	10	286	1,609	pital*A≎ Wheeling Hospital*A≎		NPAssn Church	$\frac{280}{180}$	259 110	28 20	1,053 707	7,131 4,013
Denmar Sanatorium East Rainelle, 1,515—Greenbrier	тв	State	100	141			133	Williamson, 8 366—Mingo Williamson Memorial Hosp \( \)	Gen	Corp	100	69	6	174	3 658
East Rainelle General Hosp Elkins, 8,133—Randolph	Gen	Corp	35	14	4	33	533	Related Institutions							
Davis Memorial Hospital	Gen Gen	NPA«sn Corp	108 66	57 30	11 6		2,383 1,067	Berkeley Springs, 1,145—Morgar 'The Pines' West Virginia	ı						
Fairmont, 23,105—Marion Fairmont Emergency Hos								Foundation for Crippled Children Charleston, 67,915—Kanawha	Orth	NPAssn	40	28	•	••	49
pitalao Fairmont General Hosp ao	Gen Gen	State NPAssn	68 145	49 90	5 18		1,226 3 508	Hillerest Sanatorium Moundsville, 14,168—Marshall	TbCbil	NPAsen	52	41	•	••	54
Glen Dale, 1,348—Marshall Reynolds Memorial Hosp	Gen	Church	90	34	10	201	1,253	Grand View Sanatorium West Virginia Penitentiary	TB	County	26	23	٠	•	23
Hinton 5,815—Summers Hinton Hospital▲○	Gen	Corp	67	40	4	44	1,564	Hospital St Marys, 2,201—Pleasants	Inst	State	60	42			697
Holden, 4,000—Logan Holden Hospital	Gen	Corp	24	12			564	West Virginia Training School	MeDe	State	80	78			10
Hopemont, 300—Preston Conley Hospital		of Hopeme			ıum		400	Wheeling, 61,099—Ohio Florence Crittenton Home	Mat	<b>APAsen</b>	22	13	18	23	43
Hopemont Sanitarium+▲ Huntington, 78,836—Cabell	TB	State	475	475			470								
Changeon, 10,000-Capen								737	TSCO	MTZM					
Checapeake and Ohio Hos	Gen	NPAssn	110	95	20	64	2,823	w	ISCO:				<b>m</b>	of.	
Chesapeake and Ohio Hos pital** Huntington Memorial Hos pital*	Gen Gen	NPAssn NPAssn	110 130	95 80	20 22	64 220	2,823 2,930					age us †	inets	ber of	18 + 8
Chesapeake and Ohio Hospital*A Huntington Memorial Hospital*O Huntington Orthopedic Hospital	Gen Gen Orth	NPAssn NPAssn	130 50	80 39			2,930 417	W Hospitals and Sanatoriums		nership Control	Beds	Average Census †	Bassinets	Number of Births	Admis sions †
Chesapeake and Ohio Hospital*A Huntington Memorial Hospital*O Huntington Orthopedic Hospital Huntington State Hospital Moore Beckner Eye, Ear and	Gen Gen Orth Ment	NPAssn NPAssn State	130 50 955	80 39 948			2,930 417 402	Hospitals and Sanatoriums  Adams, 1,310—Adams	Type of Service	Ownership or Control	5 Beds	Average n Census †		Number Births	
Chesapeake and Ohio Hospital*A  Huntington Memorial Hospital*A  Huntington Orthopedic Hospital  Huntington State Hospital  Moore Beckner Eye, Ear and  Throat Hospital  St Mary's Hospital*A	Gen  Orth Ment  ENT Gen	NPAssn NPAssn State Part Church	130 50 905 5 220	80 39 948 2 168	22		2,930 417 402 550 5 977	Hospitals and Sanatoriums  Adams, 1,310—Adams  Adams Friendship Hospital Algoma, 2 652—Lew aunee	Type of	O Ownership do or Control	10	5	2	Number 91 Births	214
Chesapeake and Ohio Hospital*A  Huntington Memorial Hospital*A  Huntington Orthopedic Hospital  Huntington State Hospital  Moore Beckner Eye, Ear and  Throat Hospital  St Mary's Hospital*A  Veterans Admin Facility*  keyer, 6,177—Mineral  Potomae Valley Hospital*O	Gen Orth Ment ENT Gen Gen	NPAssn State Part Church Vet	50 955 5 220 317	80 39 948 2 168 251	22 30	220 1,092	2,930 417 402 550 5 977 2,702	Hospitals and Sanatoriums  Adams, 1,310—Adams  Adams Friendship Hospital  Algoma, 2 652—Kewaunee  Algoma Hospital  Amery, 1,461—Polk	Gervice	divasing Corp	10 10	5 7	2 4	Number 16 Births	214 233
Chesapeake and Ohio Hospital*A Huntington Memorial Hospital*A Huntington Orthopedic Hospital Huntington State Hospital Moore Beckner Eye, Ear and Throat Hospital St Mary's Hospital*A Veterans Admin Facility*A keyer, 6,177—Mineral Potomac Valley Hospital*O Kingwood 1676—Preston kercheval Memorial Clinic	Gen  Orth Ment  ENT Gen Gen Gen	NPAssn NPAssn State Part Church Vet Corp	130 50 955 5 220 317	39 948 2 168 251 34	22	220 1,092 146	2,930 417 402 550 5 977 2,702 1,293	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Lewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Anteo, 9,495—Langlade	Gervice	O Ownership do or Control	10	5	2	Number 91 Births	214
Chesapeake and Ohio Hospital*A  Huntington Memorial Hospital*A  Huntington Orthopedic Hospital  Huntington State Hospital  Moore Beckner Eye, Ear and  Throat Hospital  St Mary's Hospital*A  Veterans Admin Facility*  keyer, 6,177—Mineral  Potomac Valley Hospital*O  Kingwood 1676—Preston  kercheral Memorial Clinic  Lakin, 50—Mason  Lakin State Hospital	Gen Orth Ment ENT Gen Gen Gen	NPAssn NPAssn State Part Church Vet Corp	130 50 955 5 220 317 50	80 39 948 2 168 251	22 30 8	220 1,092	2,930 417 402 550 5 977 2,702 1,293 417	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Kewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital	Gervice	divasing Corp	10 10	5 7 9	2 4	Number 91 Births	214 233
Chesapeake and Ohio Hospital**  Huntington Memorial Hospital* Huntington Orthopedic Hospital Huntington State Hospital Huntington State Hospital Moore Beckner Eye, Ear and Throat Hospital St Mary's Hospital** Veterans Admin Facility* keyer, 6,177-Mineral Potomac Valley Hospitalo Kingwood 1676-Preston kercheval Memorial Clinic Lakin, 50-Mason Lakin State Hospital Logan, 5,166-Logan Logan General Hospitalo	Gen Orth Ment ENT Gen Gen Gen Gen	NPAssn State Part Church Vet Corp Corp	130 50 955 5 220 317	80 39 948 2 168 251 34 8	22 30 8 4	220 1,092 146 32	2,930 417 402 550 5 977 2,702 1,293 417	Hospitals and Sanatoriums  Adams, 1,310—Adams  Adams Friendship Hospital Algoma, 2 652—Lew aunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamie St Elizabeth Hospital**	oolale Gen Gen	Gorp Corp NPAsen Indiv	10 10 16	5 7 9	2 4 5	Number 91 Births	214 233 400
Chesapeake and Ohio Hospital*A Huntington Memorial Hospital*A Huntington Orthopedic Hospital Huntington State Hospital Moore Beckner Eye, Ear and Throat Hospital St Mary's Hospital*A Veterans Admin Facility*A keyer, 6,177-Mineral Potomae Valley Hospital'o Kingwood 1676-Preston Aercheval Memorial Clinic Lakin, 50-Mason Lakin State Hospital Logan, 5,166-Logan Logan General Hospital Mercy Hospital Marlinton 1644-Possbootes	Gen Orth Ment ENT Gen Gen Gen Gen Gen	NPAssn NPAssn State Part Church Vet Corp	130 50 955 5 220 317 50 10	80 39 948 2 168 251 34	22 30 8	220 1,092 146 32	2,930 417 402 550 5 977 2,702 1,293 417	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Aewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamle St Elizabeth Hospital*A Arcadia, 1,830—Trempenleau St Joseph s Hospital	jo adAL Gen Gen Gen	Glosting Church  Church	10 10 16 50	5 7 9 38	2 4 5	Number 88 188 188	214 233 400 1,316
Chesapeake and Ohio Hospital*A Huntington Memorial Hospital*A Huntington Orthopedic Hospital*A Huntington Orthopedic Hospital Huntington State Hospital Honore Beckner Eye, Ear and Throat Hospital St Mary's Hospital*A Veterans Admin Facility*A keyer, 6,177—Mineral Potomac Valley Hospital* Kingwood 1676—Preston Kercheval Memorial Clinic Lakin, 50—Mason Lakin State Hospital Logan, 5,166—Logan Logan General Hospital Mercy Hospital Marlinton 1,644—Pocahontas Pocahontas Memorial Hosp Martinsburg, 15 063—Berkeley	Gen Orth Ment ENT Gen Gen Gen Gen Gen	NPAssn NPAssn State Part Church Vet Corp Corp State Corp	130 50 955 5 220 317 50 10 400	80 39 948 2 168 251 34 8 384 42	22 30 8 4	220 1,092 146 32	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Lew aunee Algoma Hospital Amery, 1,461—Poll Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamie St Elizabeth Hospital*A Arcadia, 1,830—Trempenleau St Josephs Hospital Ashland General Hospital Ashland General Hospital	to addit.  Gen Gen Gen Gen Gen Gen	distance of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contr	10 10 16 50 170	5 7 9 38 114 10	2 4 5 10 40	16 48 181 182 183 184 184 184 184 184 184 184 184 184 184	214 233 400 1,316 4,334 326 1 251
Chesapeake and Ohio Hospital*  Huntington Memorial Hospital* Huntington Orthopedic Hospital Huntington Orthopedic Hospital Huntington State Hospital Moore Beckner Eye, Ear and Throat Hospital St Mary's Hospital* Overans Admin Facility* keyer, 6,177-Mineral Potomac Valley Hospitalo Kingwood 1676-Preston kercheval Memorial Clinic Lakin, 50-Mason Lakin, 50-Mason Lakin State Hospital Logan, 5,166-Logan Logan General Hospital Mariliton 1,644-Pocahontas Pocahontas Memorial Hosp Martinsburg, 15 003-Berkeley City Hospitalo kings Daughters Hospital	Gen Orth Ment ENT Gen Gen Gen Gen Gen Gen Gen	NPAssn NPAssn State Part Church Vet Corp Corp State Corp	130 50 955 5 220 317 50 10 400 100 75	80 39 948 2 168 251 34 8 384 42 42	30 8 4	220 1,092 146 32 89 30	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Kewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamle St Elizabeth Hospital*A Arcadia, 1,830—Trempealeau St Joseph's Hospital Ashland, 11,101—Ashland Ashland General Hospital* St Joseph's Hospital* St Joseph's Hospital* Baldwin, 918—St Croix Baldwin Community Hosp	po addit. Gen Gen Gen Gen Gen Gen Gen	digitation of the Church Church Church	10 10 16 50 170 18	5 7 9 38 114 10	2 4 5 10 40 6 8	16 48 181 182 183 184 184 184 184 184 184 184 184 184 184	214 233 400 1,316 4,334 326 1 251 2 613
Chesapeake and Ohio Hospital*  Huntington Memorial Hospital* Huntington Orthopedic Hospital Huntington Orthopedic Hospital Huntington State Hospital Moore Beckner Eye, Ear and Throat Hospital St Mary's Hospital* Veterans Admin Facility* keyer, 6,177-Mineral Potomac Valley Hospitalo Kingwood 1676-Preston kercheval Memorial Clinic Lakin, 50-Mason Lakin State Hospital Logan, 5,166-Logan Logan, 6,166-Logan Marlinton 1,644-Pocahontas Pocahontas Memorial Hosp Martinsburg, 15 003-Berkeley City Hospitalo kings Daughters Hospital* Matewan, 905-Mingo Matewan, 905-Mingo Matewan, 905-Mingo Matewan, 905-Mingo Matewan, 105-Mingo Matewan, 905-Mingo Matewan, 105-Mingo  Gen Orth Ment ENT Gen Gen Gen Gen Gen Gen Gen	NPAssn NPAssn State Part Church Vet Corp Corp State Corp Corp County NPAssn	130 50 955 5 220 317 50 10 400 100 75 40 62	80 39 948 2 168 251 34 8 384 42 42 10	30 8 4 8 6 4	220 1,092 146 32 89 30 36 70 195	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Kewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamle St Elizabeth Hospital*A Arcadia, 1,830—Trempenleau St Joseph's Hospital Ashland, 11,101—Ashland Ashland General Hospital* St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA	to addit.  Gen Gen Gen Gen Gen Gen Gen Gen	Corp APAsen Indiv Church Church APAsen Church	10 10 16 50 170 18 67 135	5 7 9 38 114 10 34 92	2 4 5 10 40 6 8 15 6	16 48 61 188 996 46 164 243 96	214 233 400 1,316 4,334 326 1 251	
Chesapeake and Ohio Hospital*A Huntington Memorial Hospital*A Huntington Orthopedic Hospital Huntington State Hospital Honore Beckner Eye, Ear and Throat Hospital St Mary's Hospital*A Veterans Admin Facility*A keyer, 6,177-Mineral Potomae Valley Hospital*O Kingwood 1676-Preston kercheval Memorial Clinic Lakin, 50-Mason Lakin State Hospital Logan, 5,166-Logan Logan General Hospital Mercy Hospital Marlinton 1,644-Pocahontas Pocahontas Memorial Hosp Martinsburg, 15 003-Berkeley City Hospital*O kings Daughters Hospital*A Matewan, 905-Mingo Matewan Chnie Hospital Milton, 1641-Cabell Morris Memorial Hospital	Gen Orth Ment ENT Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State Part Church Vet Corp Corp State Corp Corp County NPAssn NPAssn Corp	130 50 955 5 220 317 50 10 400 100 75 40 62 94 42	80 39 948 2 163 251 34 8 384 42 42 10 28 53	30 8 4 8 6 4 10 8	220 1,092 146 32 89 30 36 70 195	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Lewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamie St Elizabeth Hospital* Arcadia, 1,830—Trempealeau St Joseph's Hospital Ashland General Hospital* St Joseph's Hospital St Joseph's Hospital St Joseph's Hospital St Many's Ringling Hospital St Mary's Ringling Hospital Beaver Dam, 10,356—Dodge Lutheran Deaconess Hosp	to addit.  Gen Gen Gen Gen Gen Gen Gen Gen Gen Ge	Church Church Church APAssa Church APAssa Church APAssa Church Church Church Church Church Church Church	10 10 16 50 170 18 67 135 15 45	5 7 9 38 114 10 34 92 9	2 4 5 10 40 6 8 15 6 15 8	squing 16 48 61 188 996 46 164 243 96 245 172	214 233 400 1,316 4,334 326 1 251 2 613 374 1,217
Chesapeake and Ohio Hospital**  Huntington Memorial Hospital**  Huntington Orthopedic Hospital  Huntington State Hospital  Hospital State Hospital  Hoore Beckner Eye, Ear and  Throat Hospital  St Mary's Hospital**  Veterans Admin Facility*  keyer, 6,177-Mineral  Potomae Valley Hospitalo  Kingwood 1676-Preston  kercheval Memorial Clinic  Lakin, 50-Mason  Lakin, 50-Mason  Lakin State Hospital  Logan General Hospital  Logan General Hospital  Marlinton 1,644-Pocahontas  Pocahontas Memorial Hosp  Martinsburg, 15 003-Berkeley  City Hospitalo  Aings Daughters Hospital  Matewan, 905-Mingo  Matewan Cinie Hospital  Morris Memorial Hospital  Morris Memorial Hospital  Morris Memorial Hospital  Morris Memorial Hospital	Gen Orth Ment ENT Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State Part Church Vet Corp Corp State Corp Corp County NPAssn NPAssn Corp	130 50 955 5 220 317 60 100 75 40 62 94 42 65	80 39 948 2 168 251 34 8 8 384 42 42 10 28 53	30 8 4 8 6 4 10 8	220 1,092 146 32 89 30 36 70 195	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164	Hospitals and Sanatoriums  Adams, 1,310—Adams  Adams Friendship Hospital Algoma, 2 652—kew aunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamie St Elizabeth Hospital* Arcadia, 1,830—Trempenleau St Joseph's Hospital Ashland, 21,101—Ashland Ashland General Hospital* St Joseph's Hospital* St Joseph's Hospital* St Mary's Ringling Hospital Beaver Dam, 10,356—Dodge Lutheran Deaconess Hosp St Joseph's Hospital Beaver Dam, 10,356—Dodge Lutheran Deaconess Hosp St Joseph's Hospital Beloit, 25 365—Rock	Fo edalis Gen Gen Gen Gen Gen Gen Gen Gen	Church Church APAsen Church APAsen Church Church Church Church Church Church Church Church	10 10 16 50 170 18 67 135 15 45	5 7 9 38 114 10 34 92 9 34 22 28	2 4 5 10 40 6 8 15 6 15 8 14	16 48 61 183 996 46 243 96 245 172 147	214 233 400 1,316 4,334 326 1 251 2 613 374 1,217
Chesapeake and Ohio Hospital*A  Huntington Memorial Hospital*A  Huntington Orthopedic Hospital*A  Huntington Orthopedic Hospital  Huntington State Hospital  Huntington State Hospital  Huntington State Hospital  Huntington State Hospital  St Mary's Hospital*A  Veterans Admin Facility*A  keyer, 6,177—Mineral  Potomac Valley Hospital*  Kingwood 1676—Preston  kercheval Memorial Clinic  Lakin, 50—Mason  Lakin State Hospital  Logan, 5,166—Logan  Logan General Hospital  Marlinton 1,644—Pocahontas  Pocahontas Memorial Hospital*  Marlinton 1,644—Pocahontas  Pocahontas Memorial Hospital*  Matewan, 905—Mingo  Matewan, 905—Mingo  Matewan Chnie Hospital*  Matewan Chnie Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*	Gen Gen Orth Ment ENT Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State Part Church Vet Corp Corp State Corp Corp County NPAssn NPAssn Corp	130 50 955 5 220 317 60 100 75 40 62 94 42 65 127	80 39 948 2 168 251 34 8 384 42 42 10 28 53 16	30 8 4 86 4 10 8	220 1,092 146 32 89 30 36 70 195 20 . 114	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164 134 4,447	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—kew aunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamie St Elizabeth Hospital*A Arcadia, 1,830—Trempenleau St Joseph's Hospital Ashland, 21,101—Ashland Ashland General Hospital St Joseph's Hospital Baldwin, 918—St Croix Baldwin, 918—St Croix Baldwin, 918—St Podge Lutheran Deaconess Hosp St Joseph's Hospital Beaver Dam, 10,356—Dodge Lutheran Deaconess Hosp St Joseph's Hospital Beloit, 25 365—Rock Beloit Municipal Hospital	Jo addit.  Gen Gen Gen Gen Gen Gen Gen Gen Gen Ge	Corp APAssn Indiv Church Church Church APAssn Church APAssn Church Church Church Church Church Church Church Church Church Church Church	10 10 16 50 170 18 67 135 15 45 47 60 85	5 7 9 38 114 10 34 92 9 34 22 28 61	2 4 5 10 40 6 8 15 6 15 8 14 20	166 48 61 188 996 40 164 243 96 245 172 147 663	214 233 400 1,316 4,334 326 1 251 2 613 074 1,217 1 046 1,02, 3,188
Chesapeake and Ohio Hospital*A  Huntington Memorial Hospital*A  Huntington Orthopedic Hospital*A  Huntington State Hospital  Huntington State Hospital  Huntington State Hospital  Moore Beckner Eye, Ear and  Throat Hospital  St Mary's Hospital*A  Veterans Admin Facility*A  keyer, 6,177—Mineral  Potomac Valley Hospital*  Ringwood 1676—Preston  kercheval Memorial Clinic  Lakin, 50—Mason  Lakin, 50—Mason  Lakin State Hospital  Logan, 5,166—Logan  Logan General Hospital  Marlinton 1,644—Pocahontas  Pocahontas Memorial Hospital*  Marinton 1,644—Pocahontas  Pocahontas Memorial Hospital*  Matewan, 905—Mingo  Matewan, 905—Mingo  Matewan Clinic Hospital*  Matewan Clinic Hospital*  Motris Memorial Hospital*  Morris Memorial Hospital*  Morris Memorial Hospital*  Morris Memorial Hospital*  Morgantown, 16 655—Mononga  Oity Hospital*	Gen Gen Orth Ment ENT Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State Part Church Vet Corp Corp State Corp Corp County NPAssn NPAssn Corp	130 50 955 5 220 317 60 100 75 40 62 94 42 65	80 39 948 2 168 251 34 8 8 384 42 42 10 28 53	30 8 4 8 6 4 10 8 1	220 1,092 146 32 89 30 36 70 195 20	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164 134 4,447 2,188	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—kew aunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamie St Elizabeth Hospital*A Arcadia, 1,830—Trempenleau St Joseph's Hospital Ashland, 21,101—Ashland Ashland General Hospital St Joseph's Hospital Baldwin, 918—St Croix Baldwin, 918—St Croix Baldwin, 918—St Podge Lutheran Deaconess Hosp St Joseph's Hospital Beaver Dam, 10,356—Dodge Lutheran Deaconess Hosp St Joseph's Hospital Beloit, 25 365—Rock Beloit Municipal Hospital	Jo addit.  Gen Gen Gen Gen Gen Gen Gen Gen Gen Ge	Corp APAssn Indiv Church Church Church APAssn Church Church Church Church Church Church Church Church Church Church Church	10 10 16 50 170 18 67 133 15 45 47 60 85 29	5 7 9 38 114 10 34 92 9 34 22 28 61	2 4 5 10 40 6 8 15 6 15 8 14 26 7	164 48 61 188 996 46 243 96 245 172 147 668 125	214 233 400 1,316 4,334 326 1 251 2 613 374 1,217 1 046 1,02, 3,188 889
Chesapeake and Ohio Hospital**  Huntington Memorial Hospital** Huntington Orthopedic Hospital** Huntington State Hospital Huntington State Hospital Huntington State Hospital** Huntington State Hospital** Huntington State Hospital** Huntington State Hospital** Huntington State Hospital** State Hospital** Losan State Hospital** Losan General Hospital** Logan General Hospital** Logan General Hospital** Logan General Hospital** Marlinton 1,644—Pocahontas Pocahontas Memorial Hospital** Marlinsburg, 15 003—Berkeley* City Hospital** Matewan, 905—Mingo Matewan Chale Hospital** Milton, 1 641—Cabell Morris Memorial Hospital** Montgomery, 3 231—Fayette Laird Memorial Hospital** Morgantown, 16 605—Mononga City Hospital** Morgantown, 16 605—Mononga City Hospital** Monongalia General Hospital** Mullens, 3 026—Wyoming Wylie Hospital**	Gen Orth Ment ENT Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State Part Church Vet Corp Corp State Corp County NPAssn NPAssn Corp City Corp Indiv	130 50 955 520 317 50 10 400 100 75 40 62 94 42 65 127 68	80 39 948 22 168 251 34 42 42 10 28 53 16 60 91	30 8 4 8 6 4 10 8 1	220 1,092 146 32 89 30 36 70 195 20 . 114 175	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164 134 4,447 2,188	Hospitals and Sanatoriums  Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—kew aunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamie St Elizabeth Hospital*A Arcadia, 1,830—Trempenleau St Joseph's Hospital Ashland, 21,101—Ashland Ashland General Hospital St Joseph's Hospital Baldwin, 918—St Croix Baldwin, 918—St Croix Baldwin, 918—St Podge Lutheran Deaconess Hosp St Joseph's Hospital Beaver Dam, 10,356—Dodge Lutheran Deaconess Hosp St Joseph's Hospital Beloit, 25 365—Rock Beloit Municipal Hospital	Jo addit.  Gen Gen Gen Gen Gen Gen Gen Gen Gen Ge	Church Church APAssan Church Church Church APAssan Church APAssan Church APAssan Church Church Church Church Church Church Church Church Church Church Church Church APAssan Part	10 10 16 50 170 18 67 155 45 47 60 85 29 20	5 7 9 38 114 10 34 92 9 34 22 25 61 17 20	2 4 5 10 40 6 8 15 6 15 8 14 20 7	164 48 61 188 996 46 243 96 245 172 172 663 125 253	214 233 400 1,316 4,334 326 1 251 2 613 374 1,217 1 046 1,02, 3,188 859 693
Chesapeake and Ohio Hospital*A  Huntington Memorial Hospital*A  Huntington Orthopedic Hospital*A  Huntington State Hospital  Huntington State Hospital  Huntington State Hospital  Huntington State Hospital  Huntington State Hospital  State Mary's Hospital*A  Veterans Admin Facility*A  keyer, 6,177—Mineral  Potomac Valley Hospital*  Ringwood 1676—Preston  kercheval Memorial Clinic  Lakin, 50—Mason  Lakin State Hospital  Logan General Hospital  Marinton 1,644—Pocahontas  Pocahontas Memorial Hospital  Marlinton 1,644—Pocahontas  Pocahontas Memorial Hospital*  Matewan, 905—Mingo  Matewan, 905—Mingo  Matewan Clinic Hospital*  Matewan, 050—Mingo  Matewan Clinic Hospital*  Motris Memorial Hospital*  Motris Memorial Hospital*  Morns Memorial Hospital*  Morns Memorial Hospital*  Morns Memorial Hospital*  Morns Memorial Hospital*  Morns Memorial Hospital*  Mondomoralia General Hosp  Mullens, 3 026—Wyoming  Wylic Hospital  New Martinsville, 3,491—Wetzel  Vetzel County Hospital  Oak Hill, 3 213—Fayette	Gen Gen Orth Ment ENT Gen Gen Gen Gen Ment Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State Corp Corp State Corp Corp County NPAssn Corp City Corp Indiv County Indiv	130 50 955 5 220 317 50 100 75 40 62 94 42 65 127 68 100 40 40 40 40 40 40 40 40 40	80 39 948 2 108 251 34 42 42 42 10 60 91 51 71 71 12 23	30 8 4 10 8 1 1 8 12 15 2	220  1,092  146 32  89 30 36 70 195 20 . 114 175 2,52 20 76	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164 134 4,447 2,188 2,020 367 924	Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Kewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamle St Elizabeth Hospital* Areadia, 1,830—Trempealeau St Joseph's Hospital Ashland, 11,101—Ashland Ashland General Hospital St Joseph's Hospital St Joseph's Hospital St Mary's Ringling Hospital Baldwin, 918—St Croix Baldwin Community Hosp Baraboo, 6 415—Sauk St Mary's Ringling Hospital Beaver Dam, 10,356—Dodge Lutheran Deaconess Hosp St Joseph s Hospital Beloit, 25 365—Rock Beloit Munieipal Hospital Berlin, 4247—Green Lake Berlin Memorial Hospital Black River Falls, 2,539—Jackso Krohn Clinle and Hospital Bocsobel, 2,008—Grant Brookside Parker Hospital Burlington, 4,414—Racine Burlington Memorial Hosp	Fo edalis Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	Corp APAssn Indiv Church Church Church APAssn Church Church Church Church Church Church Church Church Church Church Church	10 10 16 50 170 18 67 133 15 45 47 60 85 29	5 7 9 38 114 10 34 92 9 34 22 28 61	2 4 5 10 40 6 8 15 6 15 8 14 26 7 10 8	164 48 61 188 996 46 243 96 245 172 147 668 125	214 233 400 1,316 4,334 326 1 251 2 613 374 1,217 1 046 1,02, 3,188 889
Chesapeake and Ohio Hospital*A  Huntington Memorial Hospital*A  Huntington Orthopedic Hospital*A  Huntington Orthopedic Hospital  Moore Beckner Eye, Ear and  Throat Hospital  St Mary's Hospital*A  Veterans Admin Facility*A  keyer, 6,177—Mineral  Potomac Valley Hospital*  Ringwood 1676—Preston  kercheval Memorial Clinic  Lakin, 50—Mason  Lakin State Hospital  Logan General Hospital  Marlinton 1,644—Pocahontas  Pocahontas Memorial Hosp  Marlinsburg, 15 003—Berkeley  City Hospital  Marlewan, 905—Mingo  Matewan, 905—Mingo  Matewan Chinle Hospital*A  Matewan, 905—Mingo  Matewan Chinle Hospital*A  Moris Memorial Hospital*A  Moris Memorial Hospital*A  Moris Memorial Hospital*A  Moris Memorial Hospital*A  Morgantown, 16 635—Mononga  City Hospital*A  Mongantown, 16 635—Mononga  Olty Hospital  Monongalia General Hosp  Mullens, 3 026—Wyoming  Wyle Hospital  New Martinsville, 3,491—Wetzel  Vetzel County Hospital  Oak Hill Hospital  Parkersburg, 30,103—Wood	Gen Gen Orth Ment ENT Gen Gen Gen Gen Gen Fr Conv	NPAssn State Part Church Vet Corp Corp State Corp Corp County NPAssn NPAssn Corp City Corp Indiv County Indiv	130 50 9.55 5 5 220 317 60 100 75 40 62 94 42 65 127 68 100 400	80 39 948 21 168 251 34 42 42 42 10 28 53 16 60 91 51 71 12	30 8 4 10 8 1 1 8 12 15 2	220  1,092  146 32  89 30 36 70 195 20 . 114 175 2,52 20 76	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164 134 4,447 2,188 2,020 367	Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Kewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamle St Elizabeth Hospital*A Arcadia, 1,530—Trempealeau St Joseph s Hospital Ashland, 11,101—Ashland Ashland General Hospital* St Joseph's Hospital* St Joseph's Hospital* St Mary's Ringling Hospital Baldwin, 918—St Croix Baldwin, 918—St Croix Baldwin, 918—St Croix Baldwin, 918—St Croix Baldwin, 918—St Croix Beloit Municipal Hospital Beover Dam, 10,356—Dodge Lutheran Deaconess Hosp St Joseph's Hospital Beloit, 25 363—Rock Beloit Municipal Hospital Beloit, 25 363—Rock Berlin Memorial Hospital Black River Falls, 2,539—Jacko Krohn Clinic and Hospital Boscobel, 2,088—Grant Brookside Parker Hospital Burlington, 4,414—Racine Burlington Memorial Hosp Chippewa Falls, 10 363—Chippew Northern Wisconsin Colony	Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church	10 10 16 50 170 18 67 135 15 45 47 60 85 29 29 22 35	5 7 9 38 114 10 92 9 34 22 25 61 17 20 6	2 4 5 10 40 6 8 15 6 15 8 14 20 7 10 8 10	164 48 61 188 996 46 243 96 245 253 39 196	214 233 400 1,316 4,334 326 1 251 2 613 374 1,217 1 046 1,02, 3,188 889 699 216 887
Chesapeake and Ohio Hospital**  Huntington Memorial Hospital**  Huntington Orthopedic Hospital**  Huntington State Hospital Hospital**  Huntington State Hospital**  Huntington State Hospital**  Moore Beckner Eye, Ear and Throat Hospital**  St Mary's Hospital**  Veterans Admin Facility**  keyer, 6,177-Mineral Fotomae Valley Hospital**  Ringwood 1676-Preston Kercheral Memorial Clinic Lakin, 50-Mason Lakin, 50-Mason Lakin, 50-Mason Lakin, 50-Mason Lakin, 50-Mason Lakin, 50-Mason Logan General Hospital**  Mercy Hospital**  Marlinsburg, 15 063-Berkeley City Hospital**  Matewan, 905-Mingo Matewan Chale Hospital**  Matewan, 905-Mingo Matewan Chale Hospital**  Montgomery, 3231-Fayette Laird Memorial Hospital**  Montgomery, 3231-Fayette Laird Memorial Hospital**  Morgantown, 16 65-Mononga City Hospital**  Morgantown, 16 65-Mononga Wylie Hospital*  Mew Martinsville, 3,491-Wetzel Wetzel County Hospital*  Oak Hill, 3213-Fayette  Oak Hill, 3213-Fayette  Oak Hill, 3213-Fayette  Oak Hill Hospital*  Parkersburg, 30,103-Wood Camden Clark Memorial Hospital**  Hospital**	Gen Gen Orth Ment ENT Gen Gen Gen Gen Ment Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPASSIN State Part Church Vet Corp Corp State Corp Corp County NPASSIN NPASSIN Corp City Corp Indiv County Indiv NPASSIN Part City	130 50 955 5 5 220 317 50 10 400 100 75 40 62 94 42 65 127 68 100 40 40 40 100 75 100 100 100 100 100 100 100 10	80 39 948 251 163 251 34 42 42 10 60 91 12 23 44 44 80	30 8 4 8 6 4 10 8 1 1 5 7	220  1,092  146 32  89 30 36 70 195 20 . 114 175 2-2 20 76 66 863	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164 134 4,447 2,188 2,020 367 924 1 377	Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Kewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamle St Elizabeth Hospital*A Arcadia, 1,830—Trempenleau St Josephs Hospital Ashland, 11,101—Ashland Ashland General Hospital St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Mary's Ringling Hospital Beaver Dam, 10,356—Dodge Lutheran Deaconess Hosp St Joseph & Hospital Beoit, 25 365—Rock Beloit Municipal Hospital Berlin, 4,247—Green Lake Berlin Memorial Hospital Black River Falls, 2,590—Jack-o Krohn Clinic and Hospital Boscobel, 2,008—Grant Brookside Parker Hospital Burlington Memorial Hosp A Chippewa Falls, 10 303—Chippew Northern Wisconsin Colony and Training School St Joseph's Hospital	Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church	10 10 16 50 170 18 67 155 45 47 60 85 29 29 22 35	5 7 9 38 114 10 34 92 25 61 17 20 6 6 17 1,565	2 4 5 10 40 6 8 15 6 15 8 14 26 7 10 8	164 48 61 188 996 46 164 243 96 245 172 147 663 125 253 39 196 14	214 233 400 1,316 4,334 326 1 251 2 613 374 1,217 1 046 1,02, 3,188 889 690 216
Chesapeake and Ohio Hospital**  Buntington Memorial Hospital**  Huntington Orthopedic Hospital**  Huntington State Hospital**  Huntington State Hospital**  Moore Beckner Eye, Ear and Throat Hospital**  St Mary's Hospital**  Veterans Admin Facility**  keyer, 6,177-Mineral Potomae Valley Hospital**  Rignood 1676-Preston Kercheval Memorial Clinic Lakin, 50-Mason Lakin State Hospital**  Logan General Hospital**  Logan General Hospital**  Marilinton 1,644-Pocahontas Pocahontas Memorial Hospital**  Marlinton 1,644-Pocahontas Pocahontas Memorial Hospital**  Marlinsburg, 15 003-Berkeley City Hospital**  Matewan Chnie Hospital**  Morrs Memorial Hospital**  Morrs Memorial Hospital**  Morrs Memorial Hospital**  Morgantown, 16 655-Mononga*  Olty Hospital**  Monongalia General Hospital**  Monongalia General Hospital**  Nullens, 3 026-Wyoming Wylie Hospital**  New Martinsville, 3,491-Wetzel Onia Hill Hospital**  Oak Hill, 3 213-Fayette  Oak Hill, 3 213-Fayette  Oak Hill, 3 213-Fayette  Oak Hill Hospital**  Parkersburg, 30,103-Wood Canden Clark Memorial  Parkersburg, 30,103-Wood Canden Clark Memorial**  Parsons, 2 077-Tucker*	Gen Gen Orth Ment ENT Gen Gen Gen Ment Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State Part Church Vet Corp Corp State Corp County NPAssn NPAssn Corp City Corp Indiv County Indiv NPAssn Part City Church	130 50 955 5 5 220 317 50 10 400 100 75 40 62 94 42 65 127 68 100 40 30 75	80 39 948 22 108 251 34 42 42 42 42 53 16 60 91 51 71 12 23 44	22 30 8 4 10 8 12 15 2 5 7	220 1,092 146 32 89 30 36 70 195 20 . 114 175 2,2 20 76 66 363 278	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164 134 4,447 2,188 2,020 367 924 1 377	Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—kew aunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamie St Elizabeth Hospital* Areadia, 1,830—Trempealeau St Joseph's Hospital Ashland, 11,101—Ashland Ashland General Hospital* St Joseph's Hospital* St Joseph's Hospital* St Mary's Ringling Hospital St Mary's Ringling Hospital St Joseph Hospital St Mary's Ringling Hospital Beaver Dam, 10,355—Dodge Lutheran Deaconess Hosp St Joseph's Hospital Beolot, 25 865—Rock Beloit Munieipal Hospital Berlin, 4247—Green Lake Berlin, 4247—Green Lake Berlin Memorial Hospital Bocobel, 2,008—Grant Brookside Parker Hospital Bocobel, 2,008—Grant Brookside Parker Hospital Burlington, 4,414—Racine Burlington Memorial Hosp A Chippewa Falls, 10 308—Chippew Northerm Wisconsein Colomy and Training School St Joseph's Hospital Columbus, 2,760—Columbia St Mary's Hospital	Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Ch	10 10 16 50 170 18 67 135 45 47 69 85 29 29 22 35	5 7 9 38 114 10 34 92 25 61 17 20 6 6 17 1,565	2 4 5 10 40 6 8 15 6 15 8 14 20 7 10 8 10 5 12	164 48 61 188 996 46 164 243 96 245 172 147 663 125 253 39 196 14	214 233 400 1,316 4,334 326 1 251 1,217 1 046 1,02, 3,188 899 690 216 887
Chesapeake and Ohio Hospital*A  Huntington Memorial Hospital*A  Huntington Orthopedic Hospital  Huntington State Hospital  Honore Beckner Eye, Ear and  Throat Hospital  St Mary's Hospital*A  Veterans Admin Facility*A  keyer, 6,177-Mineral  Potomae Valley Hospital*A  Logan, 5,166-Logan  Lakin, 50-Mason  Lakin, 50-Mason  Lakin, 51-Mason  Logan General Hospital*A  Morry Hospital*A  Marlinton 1,644-Pocahontas  Pocahontas Memorial Hospital*A  Marlinton 1,644-Pocahontas  Pocahontas Memorial Hospital*A  Matewan, 905-Mingo  Matewan Chnie Hospital*A  Morgantown, 16 605-Mononga  Olty Hospital*A  Morgantown, 16 605-Mononga  Olty Hospital*A  Monongalia General Hospital*A  Monongalia General Hospital  New Martinsville, 3,491-Wetzel  Wetzel County Hospital*A  Parkersburg, 30,103-Wood  Camden Clark Memorial  Parkersburg, 30,103-Wood  Canden Clark Memorial  Parkersburg, 20,103-Wood  Canden Clark Memorial  Parkersburg, 30,103-Wood  Canden Clark Memorial  Parkersburg, 30,103-Wood  Canden Clark Memorial  Philinol 1 05-Markers  Philinol 1 05-Markers  Philinol 1 1 05-Markers  Philinol 1 1 05-Markers  Philinol 1 1 05-Markers  Philinol 1 1 05-Markers  Philinol 1 1 05-Markers  Parkers 2 1 Parkers  Philinol 1 1 05-Markers  Parkers 2 1 Parkers  Philinol 1 1 05-Markers  Parkers 2 1 Parkers  Parkers 2 1 Parkers  Parkers 2 1 Parkers  Philinol 1 1 9-Markers  Parkers 2 1 Parkers  Parkers 2 2 1 Parkers  Parkers 2 2 1 Parkers  Parkers 2 2 1 Parkers  Parkers 2 2 1 Parkers  Parkers 2 2 2 2	Gen Gen Orth Ment ENT Gen Gen Gen Gen Ment Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPASSIN State Part Church Vet Corp Corp State Corp Corp County NPASSIN NPASSIN Corp City Corp Indiv County Indiv NPASSIN Part City	130 50 955 5 5 220 317 50 10 400 100 75 40 62 94 42 65 127 68 100 40 40 40 100 75 100 100 100 100 100 100 100 10	80 39 948 251 168 251 34 42 42 10 60 91 12 23 44 42 25 171 12 25 16 16 171 12 25 16 16 16 16 16 16 16 16 16 16 16 16 16	22 30 8 4 10 8 12 15 2 5 7	220 1,092 146 32 89 30 36 70 195 20 . 114 175 2.22 76 66 363 278 68	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164 134 4,447 2,188 2,020 367 924 1 377	Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Aewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamle St Elizabeth Hospital*Arcadia, 1,830—Trempealeau St Josephs Hospital Ashland, 11,101—Ashland Ashland General Hospital* St Joseph's Hospital* St Joseph's Hospital* St Mary's Ringling Hospital Beddwin, 518—St Croix Baldwin Community Hosp Baraboo, 6 415—Sauk St Mary's Ringling Hospital Beaver Dam, 10,356—Dodge Lutheran Deaconess Hosp St Joseph s Hospital* Beloit, 25 365—Rock Beloit Municipal Hospital Beloit, 25 365—Rock Beloit Municipal Hospital Black River Falls, 2,539—Jacko Krohn Clinic and Hospital Boscobel, 2,008—Grant Brookside Parker Hospital Burlington, 4,414—Racine Burlington Memorial Hosp Northern Wisconsin Colony and Training School St Joseph's Hospital Columbus, 2,760—Columbia St Mary's Hospital Cumberland, 1,539—Barron Cumberland, 1,539—Barron	Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	Corp APAssn Indiv Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Part	10 10 16 50 170 18 67 135 45 47 60 85 29 29 22 35	5 7 9 38 114 10 9 9 34 22 28 61 17 20 6 17 1,565 89	2 4 5 10 40 6 8 15 6 15 8 14 20 7 10 8 10 5 12	164 48 61 188 996 46 164 243 96 245 172 263 29 196 14 310	214 233 400 1,316 4,334 326 1 251 1,217 1 046 1,02, 3,18S 859 690 216 887 2,607
Chesapeake and Ohio Hospital**  Buntington Memorial Hospital**  Huntington Orthopedic Hospital**  Huntington State Hospital**  Huntington State Hospital**  Moore Beckner Eye, Ear and Throat Hospital**  St Mary's Hospital**  Veterans Admin Facility**  keyer, 6,177-Mineral Potomae Valley Hospital**  Rignood 1676-Preston Kercheval Memorial Clinic Lakin, 50-Mason Lakin State Hospital**  Logan General Hospital**  Logan General Hospital**  Marilinton 1,644-Pocahontas Pocahontas Memorial Hospital**  Marlinton 1,644-Pocahontas Pocahontas Memorial Hospital**  Marlinsburg, 15 003-Berkeley City Hospital**  Matewan Chnie Hospital**  Morrs Memorial Hospital**  Morrs Memorial Hospital**  Morrs Memorial Hospital**  Morgantown, 16 655-Mononga*  Olty Hospital**  Monongalia General Hospital**  Monongalia General Hospital**  Nullens, 3 026-Wyoming Wylie Hospital**  New Martinsville, 3,491-Wetzel Onia Hill Hospital**  Oak Hill, 3 213-Fayette  Oak Hill, 3 213-Fayette  Oak Hill, 3 213-Fayette  Oak Hill Hospital**  Parkersburg, 30,103-Wood Canden Clark Memorial  Parkersburg, 30,103-Wood Canden Clark Memorial**  Parsons, 2 077-Tucker*	Gen Gen Orth Ment ENT Gen Gen Gen Ment Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	NPAssn State Part Church Vet Corp Corp State Corp County NPAssn NPAssn Corp City Corp Indiv County Indiv NPAssn Part City Church Indiv	130 50 955 5 5 220 317 50 10 400 100 75 40 62 94 42 65 100 40 30 75 100 100 100 100 100 100 100 10	80 39 948 22 103 251 34 42 42 42 42 42 42 42 42 42 4	30 8 4 8 6 4 10 8 12 15 2 5 7	220 1,092 146 32 89 30 36 70 195 20 . 114 175 2,2 20 76 66 63 363 278 68 55	2,930 417 402 550 5 977 2,702 1,293 417 95 2,421 1,597 459 1,051 1,789 1,164 134 4,447 2,188 2,020 367 924 1 377 3 342 2,856 447	Adams, 1,310—Adams Adams Friendship Hospital Algoma, 2 652—Kewaunee Algoma Hospital Amery, 1,461—Polk Amery Hospital Antigo, 9,495—Langlade Langlade County Memorial Hospital Appleton, 28 436—Outagamle St Elizabeth Hospital*A Arcadia, 1,830—Trempenleau St Josephs Hospital Ashland, 11,101—Ashland Ashland General HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Joseph's HospitalA St Mary's Ringling Hospital Belott, 25 365—Bodge Lutheran Deaconess Hosp St Joseph S Hospital Belott, 25 365—Rock Beloit Municipal Hospital Belott, 25 365—Rock Beloit Municipal Hospital Black River Falls, 2,549—Jack-to Krohn Clinic and Hospital Burlington, 4,347—Green Lake Berlin Memorial Hospital Brookside Parker Hospital Burlington, 4,348—Racine Burlington Memorial Hospi A Orippewa Falls, 10 328—Chippew Northern Wisconsin Colony and Training School St Joseph's Hospital Columbus, 2,760—Columbia St Mary's Hospital Columberland, 1,532—Barron Cumberland, 1,532—Barron Cumberland Hospital Darlington, 2 002—Lafayette McConnell McGreene Hosp Dodgeville, 2 202—Infayette	Gen Gen Gen Gen Gen Gen Gen Gen Gen Gen	Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church Church	10 10 16 50 170 18 67 135 45 47 60 85 29 29 22 35 11,439 115 40	5 7 9 38 114 10 34 92 25 61 17 20 6 17 1,563 89 26	2 4 5 10 40 6 8 15 6 15 8 14 26 7 10 8 10 10 10 10 10 10 10 10 10 10 10 10 10	164 48 61 188 996 46 243 96 245 172 147 668 125 253 39 196 144 310 147	214 233 400 1,316 4,334 326 1 251 1,217 1 046 1,02, 3,18S 859 699 216 887 2,607 705

Wiscon	ISIN-		iued	i				WISCONSIN—Continued
	₩	rnership Control		e <del>+</del>	ets	r of		trol trol
Hospitals and Sanatoriums	Type of Service	Owners or Con	Beds	Avernge Census	Bassinets	Number Births	Admis- sions †	Type of Service Ownership or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Control or Cont
Eau Claire, 30,745—Eau Claire Luther Hospital*40			146		30		∢ ω 3,883	St. Luke's Hospital*4 Gen Church 100 90 35 1 042 4 353
Mt. Washington Sanatorium Sacred Heart Hospital	$\mathbf{TB}$	County Church	91 170	91 94	26	434	76 3,178	St. Mary's Hill
Edgerton, 3,266—Rock Edgerton Memorial Hospital		NPAssn	25	11	9	130	613	St. Michael Hospital* Gen Church 145 70 30 691 3,818
Elkhorn, 2,382—Walworth Walworth County Hospital.	Gen	County	75	49	11	351	1,680	tarium
Fond du Lac, 27,209—Fond du L St. Agnes Hospital**	ac	Church	232	223	30	851	6,561	Stark Hospital Unit of Milwaukee Children's Hospital Veterans Admin. Facility. Gen Vet 989 639 4,903
Fort Atkinson, 6,153—Jefferson Fort Atkinson General Hosp.	_	Indiv	12	5	4	30	100	West Side Hospital
Frederic, 725—Polk Frederic Hospital	Gen	Indiv	12	10	4	68	581	Mondovi, 2,077—Buffalo Mondovi Clinic Hospital Gen Indiv 16 10 4 72 350
Grantsburg, 874—Burnett Community Hospital	Gen	Corp	21	15	4	56	511	Monroe, 6,182—Green Evangelical Deaconess Hosp, Gen Church 35 15 12 96 463
Green Bay, 46,225—Brown Bellin Memorial Hospital	Gen	Church	87		11	365	2,892	St. Clare Hospital Gen Church 63 38 16 247 1,567 Neenah, 10,645—Winnebago Theda Clark Memorial Hos-
St. Mary's Hospital St. Vincent's Hospital	Gen Gen	Church Church	100 225	75 151	22 25		4,078 7,079	pital
Hartford, 3,910—Washington St. Joseph's Hospital Hawthorne, 75—Douglas	Gen	Church	50	28	8	115	653	Community Hospital Gen Church 40 27 13 223 938 New London Memorial Hos-
Middle River Sanatorium.  Hayward, 1,571—Sawyer	TB	County	142	135	••	•••	107	pital
Hayward Indian Hospitai	Gen	IA	49	35	9	93	717	Rogers Memorial Sanitarium N&M NPAssn 54 42 115   Summit Hospital
Hillsboro, 1,146—Vernon Hansberry Hospital	Gen	Indiv	25	14	5	47	420	Oconto Falls, 1,888—Oconto Oconto Falls Hospital Gen City 12 6 3 52 284
Iola, 746—Waupaca Iola Hospital	Gen	Corp	20	8	5	25	384	Onalaska, 1,742—La Crosse Oak Forest Sanatorium4 TB County 62 65 105
Janesville, 22,992—Rock Mercy Hospital+▲○ Pinchurst Sanatorlum▲	Gen	Church County	120 80	78 75	25	459	2,455 77	Osceola, 642—Polk Ladd Memorial Hospital Gen Part 12 7 2 47 318
Jefferson, 3,059—Jefferson Forest Lawn Sanatorium		County	60	58			82	Oshkosh, 39,089—Winnebago Mercy Hospital*40
Kaukauna, 7,382—Outagamie Riverview Sanatorium		County	65				101	Park Falls, 3,252—Price Park Falls Hospital Gen Indiv 25 12 4 76 605
Kenosha, 48,765—Kenosha	Gen	NPAssn	150	67	30	455	2,980	Pewaukee, 1,352—Waukesha Oak Sanatorium TB Counties 42 38 51
St. Catherine's Hospital Willowbrook Sanatorium	Gen	Church County	70 80	44 44	22	462	1,826 48	Platteville, 4,762—Grant Andrew Hospital Gen Indiv 20 5 4 11 231
	Gen	Church	60	40	7	133	1,166	Wilson Cunningham Hosp Gen Part 25 7 8 55 223
•	Gen	NPAssn	106	37	10	102 112	1,173 1,229	Plum City, 368—Pierce Plum City Hospital Gen Indiv 15 10 5 57 318
La Crosse Hospital La Crosse Lutheran Hosp.+A	Gen	NPAssn Church	40 120	23 74 24	12 9 36	188 871	2,547 917	Plymouth, 4,176—Sheboygan Plymouth Hospital Gen Church 36 18 8 158 658 Rocky Knoll Sanatorium TB County 90 50 57
St. Ann's Hospital	Mat Gen	Church Church	30 256	192	36	909	5,401	Portage, 7,016—Columbia
Ladysmith, 3,671—Rusk St. Mary's Hospital		Church	35	23	8	178	824	Port Washington, 4,046—Ozaukee
Lancaster, 2,963—Grant Doolittle-Glynn Hospital	Gen	Indiv Part	12 12	6 5	5 6	59 19	307 148	St. Alphonsus Hospital Gen Church 73 12 Estab. 1941 Prairie du Chien, 4,622—Crawford Beaumont Hospital Gen Part 18 5 4 21 110
Lancaster General Hospital. Laona, 1,500—Forest		Indly	14	5	4	69	250	Prairie du Chien Sanitarium Hospital
Ovitz Hospital  Madison, 67,447—Dane Lake View Sanatorium	TB	County	150	144		,	121	Prescott, 857—Plerce St. Croixdale Sanitarium GenN&M Corp 50 32 5 11 150
Madison General Hospital*	Gen	Church	177 110	145 56	26 14		2,187	Purcair (Bayfield P.O.), —Bayfield Purcair Sanatorium TB Counties 70 63 95
Morningside Sanatorium	N&M	NPAssn Corp	54 30	51 18	50	1,136	57 176 6,879	Racine, 67,195—Racine  Gen Church 118 74 40 534 2,867
St. Mary's Hospital*** State of Wisconsin General	Gen	-	175 725	176 620			13,098	St. Luke's Hospital ¹ A Gen Church 200 107 40 650 5,205 St. Mary's Hospital ¹ A Gen Church 200 107 40 650 5,205 Sunny Rest Sanatorium ¹ A TB County 83 81 53
Hospital*+≜♦	Gen TB	State State	43	21	••	• • •	198	Reedsburg Municipal HospGen City 30 12 8 132 616
		f State of						Rhinelander, 8,501—Oneida  Charg's Hospital Gen Church 75 49 10 234 1,519
stitute	Onit o	f State of	Wis	consin	Ger	neral I	Hosp.	Rice Lake, 5,819—Barron Takerida Nethodist Hospital, Gen Church 50 27 16 186 1,922
	Gen	Church	123	60	20	301	2,010	St. Joseph's Hospital Gen Church
'.,	Gen	County	80	45	22		1,758 4,092	Richland Hospital Gen Arassu 65
arouston 2 621-Juneau	Gen	Church	198	115 26	18 6	404 116	997	Ripon Municipal Hospital., del
Mauston Hospital		Corp	45 38	20	6	95	706	City Hospital
Mediord Chile		Corp State	860	769			1,185	St. Croix Falls Hospital Gen NPAssn 20 11 4 21 11 12 11 12 11 12 12 13 14 14 15 14 14 15 14 16 16 16 16 16 16 16 16 16 16 16 16 16
Mendota, 400—Dane Mendota Stute Hospital Veterans Admin, Facility	Ment	Vet	295	295	••	•••	100	Chebergen 40 600-5000000000 100 120 18 600 10 10
Menomonie, 6,582—Duni Menomonie City Hospital	Gen	City	25	20	7	128	796	St. Mcdoling, Thom & Gen NPAssn 82 10 20 183
Merrill, 8,711—Lincoln Holy Cross Hospital Lincoln County Hospital	Gen Gen	Church County	50 27	31 20	11 4	212 54	1,192 187	ukee 14 10 6 72 230
Tincom County Mospitality	Gen	NPAssn	125	91	25	579	3,560	Gen Church 75 40 13 2-6 1,795
	Gen	Church	140 25	10S 10	30 4		5,160 3,211	Gen NPAssn 18 10 4 67 795
Milwaukee Children's Hos-		NPAssn	170	107			3,562	TB State 242 193 166
	. Unil . Tiere -	NPAssn • Milwaul						• TB Church 62 62 15 264 2,105
Dispensary-Emergency	Wau	Church	223	193	42	1,174	6,859	Gen Chater
Milwaukee Hospital*** Milwaukee Sanitarium	Gen	auwatosa Church	112	70	20	778	3.147	Gen NPAssn 24 18 9
Mt. Sinai Hospital*40	Gen Gen	NPAssn Church	160 275	157		1,050	2,077 1,793	Sturgeon Bay, 5,335 Hospital, Gen Indiv 28 10 8 8
Sacred Heart Santarinings. St. Anthony Hospital St. Joseph's Hospital***	, Gen Gen	Church Church	50 300	210	16 80	2.186	8,630	Lensum Hospital
Dr. anschu e			К	(ey to	sym	bols a	nd abb	reviations is on page 1071

WISCO	NSIN	—Conti	nued	l				WISCONSIN—Continued	
					<b>8</b> 9	of		Service Ownership or Control Beds Average Consus t Burssinets Burshers of	
	Type of Service	Ownership or Control	_	Average Census t	Bassinets	Number of Births	118 8 +	Type of Service Service Ownership or Control Average Consus † Bassinets Admics	18 4
Hospitals and Sanatoriums	lyp	or C	Beds	Aver	Bass	Num	Admis sions †	Helated Institutions Service Consists British Burth Burth Admin	Admis sions †
Superior, 35,136-Douglas								Jefferson, 3,059—Jefferson Jefferson County Asylum for	
St Francis Hospital St Joseph's Hospital	Gen Gen	Church Church	50 38	24	10 14	119 284	1,100 779	Chronic Insane Ment County 242 216 .	31
St Mary's Hospital** Tomah, 3,817-Monroe	Gen	Church	135	77	28	246	2,031	Juneau, 1,301—Dodge Dodge County Asylum and Home Ment County 206 200	206
Tomah Indian Hospital Tomahawk, 3,365—Lincoln	Gen	IA	42	27	5	58	52o	kewaunce 2 533-kewaunce	136
Sacred Heart Hospital Two Rivers, 10,302—Manitowoc	Gen	Church	60	31	10	51	717	Lake Tomahawk, 60-Oneida	
Two Rivers Municipal Hosp	Gen	City	48	39	10	209	2,002	Lake Tomahawk State Camp TB State 50 44 Lancaster, 2,963—Grant	41
Union Grove, 973—Racine Southern Wisconsin Colony	35-70-	04.4.	000	806			80	Grant County Asylum Ment County 2.0 250 . Madison, 67 447—Dane	10
and Training School Veterans Administration, — Wild	aukee	State	839	000			30	East Washington Avenue	129
Veterans Admin Facility Viroqua, 3,549—Vernon		lwaukee						Manitowoc, 24,404—Manitowoc Manitowoc County Insane	
Viroqua Hospital Washburn, 2,363—Bayfield	Gen	Part	22	12	5	84	701	Asylum Ment County 220 204 Marshfield, 10,359—Wood	21
Washburn Hospital Watertown, 11,301—Jefferson	Gen	NPAssn	14	6	5	26	276	Wood County Asylum for	27
St Mary's Hospital Waukesha, 19,242—Waukesha	Gen	Church	75	48	17	328	1,543	Menomonie, 6 589—Dunn	
Milwaukee Children's Hos pital Convalescent Home	Tinit c	of Milwaul	eo C	hildre	ne.	Hosni	tal.	Dunn County Asylum Ment County 191 187 Milwaukee, 587,472—Milwaukee	28
· · · · · · · · · · · · · · · · · · ·	Milw	aukce					4 013	Layton Home Incur Church 36 34 Salvation Army Martha Wash	7
Waukesha Memorial Hosp Waukesha Springs Sanit	Gen N&U	City Corp	8ə 50	78 16	24	012	44	ington Women's Home and Hospital See Waywatosa	
Waupaca, 3,458—Waupaca City Hospital	Gen	Part	12	8	2		245	Monroe, 6 182—Green Green County Asylum Ment County 275 211	27
Waupaca Hosp and Clinic Waupun, 6,798—Fond du Lac	Gen	Part	13	9	3	42	322	Neillsyille, 2,562—Clark	
Central State Hospital for							00	New Richmond, 2,112—St Croix	75
Insane Clark and Swartz Hospital	Ment Gen	State Part	33ა 8	312 5	4	36	82 186	St Croix County Asylum for Chronic Insane Ment County 182 178	16
Wausau, 27,268—Marathon Dr Lee M Willard Memorial								Oconto, 5,362—Oconto	10
Preventorium		f Mount V			oriui	n	771		818
Mount View Sanatorium▲ St Mary's Hospital▲○	TB Gen	County Church	90 150		25	453	71 3,236	Oshkosh, 39,089—Winnebago Alexian Brothers Hospital N&M Church 84 75	62
Wausau Memorial Hospitals Wauwatosa, 27,769—Milwaukee	Gen	NPAssn	95	66	25	430	2,396	Owen, 1,083—Clark Clark County Hospital Ment County 366 363	42
Blue Mound Preventorium Milwaukee County Asylum f		of Muirdal	e Sar	natorn	um			Oxford, 404—Marquette	
Chronic Insane	Ment	County :	1,716	1,659			297	Oxford Hospital Gen Indiv 10 4 1 5 Peshtigo, 1,947—Marinette	61
Milwaukee County Hos pital*+40	Gen	County	1,000	522	70	782	15,062	Marinette County Insane Asylum Ment County 310 240	76
Milwaukee County Hospital for Mental Diseases+4	Ment	County	1.095	998			542	Racine, 67,195—Racine Lincoln Memorial Hospital	••
Milwaukee Sanitarium+A Muirdale Sanatorium+AO	N&M TB	Corp County	147 585	140 541			339 597	for Communicable Diseases TbIso City 50 14	21"
West Bend, 5,452-Washington	Gen	-				168			376 118
St Joseph's Hospital West DePere, Brown		Church	40	24	8	105		Sauk County Home and	
Hickory Grove Sanatorium Whitehall, 1,060—Trempealeau	тв	County	96	93			61	Asylum Ment County 195 193 Richland Center, 4,364—Richland	15
Whitehall Community Hosp Whitelaw, 269—Manitowoc		NPAssn	28	19	5	100	60	Richland County Asylum for Insane Went County 154 146	12
Maple Crest Sanatorium▲ Wild Rose, 559—Waushara	TB	County	52	52			70	Shawano, 5,565—Shawano Shawano County Insane	
Wild Rose Hospital	Gen	Indit	24		4	Estab	1941	Asylum . Ment County 190 185	25
••	TB Ment	Counties State	98 8ə1	96 784			95 906	Sheboygan, 40,638—Sheboygan Sheboygan County Hospital	
Riverview Hospital	Gen	NPAssn	35		12	400	1,571	Sparts 5 8%-Monroe	105
Wood,Milwaukee Veterans Admin Facility			55	50	12	403	1,011	Monroe County Insane Asylum Ment County 172 172	8
	Dec 11	ilwaukee						Superior, 35 136—Douglas Douglas County Asslum and	
Related Institutions Appleton, 28,436—Outagamie								Tuberculosis Sanatorium See Itasca Verona, 535—Dane	
Outagamie County Asylum Chippewa Falls, 10,368—Chippe	Ment wa	County	268	251			26	Dane County Asylum for	004
Chippewa County Chronic Insane Asylum		County	3,5	350			58	Viroqua 3 549—Vernon	307
Clintonville, 4,134—Waupaca Clintonville Community Ho		County	000	200			<b>5</b> 0	Watertown, 11 301—Jefferson	41
pital Dodgeville, 2,269—Iowa	Gen	Indiv	12	7	4	44	191	Bethesda Lutheran Home for Feebleminded and Epilep	
Iowa County Insane Asylur	n Uent	Countr	182	173			175	tics MeDe Church 370 365 . Waukesha, 19 242—Waukesha	22
Eau Claire, 30,745—Eau Claire Fau Claire County Insane								Waukesha County Asylum for Chronic Insane   Ment County 230 226	67
Asylum Elkhorn, 2 3°2—Walworth	uent	County	2 ₀ 3	249			31	Waupun, C,798—Fond du Lac Wisconsın State Prison Hos	٠.
Walworth County Asylum for the Insanc	Ment	County	238	219			261		285
Fond du Lac, 27,200—Fond du Fond du Lac County Insan	Iae					-		Marathon County Asylum	••
Asylum Green Bay, 46,235—Brown	Ment	County	326	281			72	Marathon County Home	33
Brown County Insanc Asylum	Mont	County	295	ø∩÷			20-	and Hospital Inst County 60 52 Wauwatosa, 27,769—Milwaukee Uniwaukee County Home for	22?
Wisconsin State Reformator Hospital	L.Z.			293		•	305	Dependent Children Inst County 80 38 1,	,401
Hazel Green, 582-Grant	Inst	State	13	3		•	185	Salvation Army Martha Wash	175
Hazel Green Hospital Itasea, 315—Douglas Douglas County Asylum an	Gen	Indiv	8	3	4	15	92	ington Women's Home and Hospital Mat Church 76 49 15 196	143
Tuberculosis Sanatorium	Ment	County	356	339			<b>S</b> 1	West Bend, 5,452—Washington Washington County Asylum	110
Parkland Sanatorium	Unit	of Dougla erculosis S	s Co	unty orlum	Asyl	um ai	nd	for Chronic Insane Ment County 155 150 West Salem, 1 254—La Crosse	15
Janesville, 22,002—Rock Rock County Hospital		County		835			81	Ln Crosse County Asylum	02
						hale -		for Insane Ment County 275 270	23

Wisco	ONSI	NCon	tinu	h-					MARCH 28, 1942
						, j		i	ALASKA—Continued
Related Institutions	Type of Service	Ownership or Control	Beďs	Average	Rassinote	Number of	Admis-	us +	Hospitals, Sanatoriums and Related lustitutions Country Beds  Average Census †  Bucks Britis  Bucks Britis  Bucks Britis  Huines 377
Weyauwega, 1,173—Waupaca Waupaca County Insane			ř	ΨÇ	ž č	i ži	A P	윤	
Whitehall 1 035-Trompoles			196	19	2 .,		. 2:	28	Station Hospital Gen Army 15 7 1 3 141
Trempealeau County Asylur Winnebago, 150—Winnebago	m Ment	County	148	14	ι.,		. 19	12	St. Ann's Hospital
Winnebago County Asylum. Wyocena, 706—Columbia	Ment	County	262	26	·			30	
Columbia County Asylum			313	29-	٤			22	Kanakanak Native Hospital. Gen IA 18 22 1 27 263 Ketchikan, 3,796
		MING						- }	Ketchikan General Hospital. Gen Church 65 40 10 125 1,313 Kodiak, 864
•					m	oţ			Griffin Memorial Hospital Gen Ter 18 6 5 25 189 Kotzebue, 291 Kotzebue Hospital Gen IA 17 16 1 5 261
n #	e of ice	ersh onti		8 <i>Ee</i> 118 +	inet	Jac.	o 4°+	_	Mountain Village, 76
Hospitals and Sanatoriums	Type Servic	Ownership or Control	Beds	Average Census t	Bassinets	Number	Admis-	Si	Mountain Village Hospital. Gen IA 19 13 2 9 96 Nome, 1,213 Maynard-Columbus Hospital Gen Church 20 10 3 21 267
Basin, 1,099—Big Horn Basin Hospital	Con	Part	12			, ,		- 1	Paimer, 150
Casper, 17.964—Natrona	A TB	State	33	23	2	40			Matanuska Valley Hospital. Gen Corp 30 17 4 41 529 Petersburg, 1,252
Memorial Hospital of Natron		0	- 15						Petersburg General Hospital Gen City 9 4 3 34 123 St. Paul Island (Unalaska P.O.), 212
Cheyenne, 22,474—Laramie Memorial Hospital of Lara-	. Gen	County	140	73	24	399	2,658	8	St. Paul Island Hospital Gen Fed 10 4 2 15 100 Seward, 835
ine County	Con	County	133		20	515	2,881		Seward General Hospital Gen Church 30 4
Veterans Admin. Facility Cody, 2,536—Park		Vet	151	100		•••	•	2	Pioneers' Home Hospital Inst Ter 45
Cody Hospital Douglas, 2,205—Converse		NPAssn	23	12	6	92	640	0 }	White Pass Hospital Gen NPAssn 10 2 2 94 Tanana, 185
Douglas Hospital Evanston, 3,605—Unta		Indiv	19	11	4	48	445	5	Tanana Hospital Gen IA 30 4 Wrangell, 948
Wyoming State Hospital. Fort Warren, 22—Laramie	. Ment	State	675	631	••	•••	144	1	Bishop Rowe General Hosp., Gen Church 14 3
Station Hospital	. Gen	Army	240	103	6	41	2,441	1	CANAL ZONE
Wind River Indian Hospital. Gillette, 2,177—Campbell	Gen	IA	50	25	6	79	673	3	******
McHenry Hospital	Gen	Indiv	15	12	4	51	380	)	oof see see see see see see see see see se
St. Luke's Hospital Jackson, 1,046—Teton	Gen	Part	10	3	2	42	189	, }	Hospitals, Sanatoriums and Beds  Avernge Census that Bassinets  Number of Births  Admis- Book Admis- Book Admis- Book Admis- Book Admis- Book Admis- Book Admis- Book Admis- Book Admis- Book Admis- Book Admis- Book Admis-
St. John's Hospital Kemmerer, 2,026—Lincoln Lincoln County Miner's	. Gen	Church	26	7	4	77	429		Gorgas Hospital** Gen Fed 1.340 724 48 833 20,064
Hospital	Gen	NPAssn	26	16	5	97	581	1	Palo Seco Leper Colony Lepro Fed 129 127 9
•	Gen	Church	20	11	6	•••	464	1	Station Hospital Gen Army 35
Ivinson Memorial Hospital. Lovell, 2,175—Big Horn	Gen	County	71	36	15	289	2,088	3	Corozal Hospital Ment Fed 340 303 311 Station Hospital Gen Army 47 33 1,000
Lovell Hospital Lusk, 1,814—Niobrara	Gen	Part	20	8	8	167	493	1	Cristobal, 599 Colon Hospital
Lusk Hospital	Gen	Indiv Indiv	25 19	14	9	42 Estab	493	1	Fort Davis, 293 Station Hospital Gen Army 60 52 2,548
Powell, 1,948—Park Whitlock Hospital		Corp	30				boildd	-	Station Hospital       Gen       Army       60       52        2,548         Fort Randolph (Coco Solo P.O.), 724       Station Hospital       Gen       Army       25       17        1,969
Rock Springs, 9,827—Sweetwater Wyoming General Hosp. Sheridan, 10,529—Sheridan	Con	State	100	64			2,747	- }	Fort Sherman, 786 Station Hospital
Sheridan, 10,529—Sheridan Sheridan County Memorial	ocn	State	100	01			•	-{	HAWAII
Hospitalo Veterans Admin, Facility	Gen Ment	County Vet	67 596	51 554		228	1,402 222	-	_ **
Sn.A.		NPAssn	41	17	7		1,025	1	
	Gen	Corp	20	11	8	130	626	}	Hospitals, Sanatoriums and Service of Contributions Average Grant Bashort Births at Contribution of Contributions Average Grant Births at Contribution of Contributions at Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Contribution of Con
Related Institutions		_						}.	Aiea, 3,021—Honolulu
Evanston, 3,605—Uinta Jacoby Hospital	Gen	Indiv	6	2	3	в	105	1	Eleele, 312-Kauai
Hanna, 1,127—Carbon Hanna Hospital	Gen	NPAssn	12	5	3	30	250		McBryde Sugar Company's Hospital
Lander. 2,594—Fremont Wyoming State Training		94-40	207	200	2	2	26	1	Ewa, 4,739—Honolulu Ewa Plantation Company Hospital Gen NPAssn 48 27 6 132 1,111
School			397	392		127	230	) ,	Hoina, —Hawaii
Reynolds Home Thermopolis, 2,422—Hot Springs	1	Indiv	12	5	8	38		1	Honokaa Sugar Compnay Hospital
Hilltop Hospital Yellowstone Park, 200—Yellowsto	one Na	ingiv tional Parl	16 33	6 17	6 3	5	267 260	1	Hakalau, 525—Hawaii Hakalau Plantation Hosp Gen NPAssn 25 3 30 455
Mammoth Hospital		Indiv	99	11		Ü	200	1	Hana, 293-Maul Hana County Hospital Gen County 36 4
4	ALAS					ey.		1	Hanapepe, 1,088—Kauai Betsui Hospital Gen Indiv 10 5 2 37 250
	of e	ship ntro		8 + 6	neta	s s	a + 1	1	Hilo, 19,468—Hawaii  Hilo Memorial Hospital Gen County 140 SS 18 340 2,625  Hilo Memorial Hospital Gen Indiv 22
Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	sions †		Puumalle HomeTB County 163 100 111
Anchorage, 2,277	T.S	00	m				- 1	-	Gen Indiv 6 2 3 23 104
Alaska Railroad Base Hosp.  Providence Hospital	Gen Gen	Fed Church	30 55	9 32	5 10		3,348 2,271		Lepro Ter 151 60
Bethel, 278 Bethel Hospital		1A	40		6		[		Transland Children S 11050 Chill NPASSO 92 62
Cordova, 980 Cordova General Hospital		Indiv	30		2	20		Į	Leahi Home TB NPASS 254 263 26 1,425 10,540 Gen NPASS 254 263 26 1,425 10,540
Fairbanks, 2,101 St. Joseph's Hospital		Church	53	47	8	128	1,371		St. Francis Hospital for Crin-
Fort Yukon, 304 Hudson Stuck Memorial Hos-				10	9	-	,		Shriners Hospital for Crippeled Children A. Orth NPAssn 28 27
pital*	ien -	Church	40	10	2	27	150		Triplet General 25-1-

HAWA	PHILIPPINES—Continued														
Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- sions t	Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admis- eions †
	F.W	68	ň	άÖ	Ä	ŹΑ	₹. <u>8</u>	Batangas, 41,182—Batangas	Gon Gon				3		74 100
Hoolehua, —Maui Robert W. Shingle, Jr.,	Gen	Church	19		5		\		·-an	Gov't Gov't	27 27	•••	1	•••	•••
Memorial Hospital Kahuku, 1,505—Honolulu Kahuku Hospital	Gen	NPAssn	30	19	б	125	702			NPAssn	2, 15	•••	9	•••	
Kalaupapa, -Kalawao	T ~~~0	Ter	515	378	2	5	57	Bontoc, 609—Mountain Bontoc Hospital	Gon	Gov't	60	36	3	51	1,191
•	. ,	Ter	926	953			354	Butuan, 9,790—Agusan	Gen	Gov't	34				
Kanaa,Kauai Samuel Mahelona Memorial		~ .		00			66	•					-		
Transital .	TB		115	96	••	99	464	pital Cagayan, 28,164—Misamis Orien	Gen tal	Gov't	75	•••	6	•••	•••
Kilauea, 1,232—Kaual	Gen	County	50 25	31 9	6 5	46	335	Cagayan Mission Hospital Misamis Oriental Provincial	Gen	Church	50	•••	5	•••	••
Kilauea Hospital Kohala, 720—Hawali	_	County	46	19	6	122	626	Hospital	Gen	Gov't	25	•••	1	•••	••
Kohala County Hospital Koloa, 1,844—Kaual Koloa Sugar Company	Gen	County	20		Ü			Capiz Provincial Hospital Canlubang, —Laguna	Gen	Gov't	30	•••	5	•••	•••
Ho	Gen	NPAssn	22	11	3	56	490	Calamba Sugar Estate Hos- pital	Gen	NPAssn	39	•••		•••	•••
Kula Kula Sanatorium	Gen TB	County County	20 185	12 156	3	38	432 87	Capiz, 21,996—Capiz Emmanuel Hospitalo Cavite, 22,163—Cavite	Gen	Church	80	•••	5	•••	•••
Lahaina, 2,730—Maui Pioneer Mill Company's Hos-					_			Cosca Hospital Cebu, 65,300—Cebu	Gen	Part	20	5	9	112	197
pital Lanai City, —Maui	_	NPAssn	65 05	40	9	150	. }	Cebu General Clinic Cebu Maternity House	Gen Mat	Part NPAssn	22 33	•••	$\frac{2}{26}$	•••	• • •
Lanai City Hospital Lihue, 2,399—Kauai	Gen	NPAssn	25	13	5	84	602	Chong Hoa Chinese Hosp	Gen Gen	NPAssn Indiv	20 20		••	•••	• • •
G. N. Wilcox Memorial Hos- pital	Gen	NPAssn	91	38	11	266	1,833	r	Gen Gen	Corp Gov't	24 136		6	26	394
Maunaloa, Maui Maunaloa Hospital	Gen	NPAssn	19	4	5	22	284	Cervantes, 2,513—Ilocos Sur Cervantes Hospital	Gen	Gov't	30		2		•••
Olaa, 597—Hawaii Olaa Hospital Ookala, 526—Hawaii	Gen	NPAssn	37	21	6	123	945	Corregidor, —Cavite Station Hospital	Gen	Army	178	70	6	114	2,190
Ookala Hospital Paauhau, 536—Hawail	Gen	NPAssn	10	•••	4	•••	•••	Cotabato, 410—Cotabato Cotabato Public Hospital	Gen	Gov't	40		2		•••
Paruhan Sugar Company	. Gen	NPAssn	18		2		•••	Culion, —Palawan Culion Leper Colony G Cuyo, 14,768—Palawan	enLepre	o Gov't	618		16	•••	•••
Hospital Paauilo, 1,233—Hawaii Hamakua Mill Company								Cuyo Public Hospital  Dagupan, 22,613—Pangasinan	. Gen	Gov't	20	•••	3	•••	•••
Hospital Pahala, 290—Hawali	. Gen	NPAssn	12	•••	2	•••	•••	Pangasinan Provincial Hos- pital	. Gen	Gov't	75		8		
Hawaiian Agricultural Com- pany Hospital ♣	. Gen	NPAssn	39	16	6	113	742	Dahican,—Camarines Norte Dahican Hospital		NPAssn	34	41	1	12	1,624
Paia, 4,171—Maul Maul Agricultural Company'	S							Dansalan, 5,988—Lanao Lanao Public Hospital	. Gen	Gov't	50				-,0
Paja Hospital Papaaloa, 73—Hawaii		NPAssn	102	•••	10	•••	•••	Dapitan, 12,865—Zamboanga Rizal Memorial Hospital	. Gen	Gov't	30		3		
Laupahoehoe Sugar Compar Hospital Papaikou, 518—Hawaii	. Gen	NPAssn	19	G	4	28	259	Daraga,-Albay Albay Provincial Hospital.		Gov't	35		2	•••	
Papaikou Hospital	. Gen	Indiv	18		1	•••		Davao, 13,046—Davao Davao Mission Hospital		Church	40	•••	1	•••	•••
Pearl City, 1,071—Honolulu Walmano Home for Feeble- minded Persons		Ter	368	363			20	Davao Oriental Hospital  Davao Public Hospital	. Gen	NPAssn Gov't	35 40	***	5		
Pearl Harbor, 200-Honolulu U. S. Naval Hospital*		Navy	178	140			3,589	Mintal Hospital  Del Carmen. —Pampanga	. Gen	Corp	75	•••	10	•••	•••
Pepcekeo, 520—Hawaii Pepcekeo Hospital		NPAssn	41	20		110	941	Del Carmen Hospital Dumaguete, 16,227-Oriental No	. Gen	NPAssn	37	22	3	48	1,204
Puunene, 4,081Maui Puunene Hospital	Gen	NPAssn	100	79		283	3,778	Fabrica. —Occidental Negros	ii Gen	Church	75	•••	3	•••	•••
Schofield Barracks, 4,250—Hor Station Hospital Wahiawa, 3,370—Honolulu	olulu	Army	530	305	13		6,271	Ilco Hospital Fort Stotsenburg, —Pampang Station Hospital	. Gen	NPAssn	50	•••	••	• • •	•••
Mack Hospital	Gen	Indiv	9	Ş	3	33	114	110110, 49,114-110110		Army	112	57	6	. 209	2,156
Walalua, 4,511—Honolulu Walalua Agricultural Com-		Nm t						Iloilo Mission Hospitalo Iloilo Polyclinic and Hosp. St. Paul's Mission Hospital.	- Gen	Church Indly Church	100 25 200	•••	12 6		•••
pany, Ltd. Hospital Wailuku, 6,998—Maui Malulani Hospital	Gen	NPAssn County	40 93	17		101	1 451	Jolo, 5,796—Sulu Sulu Public Hospital	. Gen	Gov't	46	•••	10	•••	•••
Waimea, 2,091—Kauai Waimea Hospital	Gen	NPAssn		31	10	133	1,471 886	Jolo, 5,798—Sulu Sulu Public Hospital Kabasalan, —Zamboanga Pathfinder Estate Hospital.	. Gen	NPAssn	10	•••		•••	•••
Waipahu, 5,874—Honolulu Oahu Sugar Company Ho	ş.	212 210311	50	0,	. 0	100	500	Klangan Hospital	. Gen	Gov't	15		1		
pital Tamura Hospital	Gen	NPAssn Indiv	65 7		. 10 i 3	60	217	Kolambugan, 1,260—Lanao Kolambugan Hospital	. Gen	NPAssn	30	•••			
			_			••		Laong, 38,469-Ilocos Norte Sallie Long Read Memorial	C	Oharah			_		
P	HILI	PPINE	S			_		Hospital San Antonio Hospital Larap, —Camarines Norte	. Gen	Church Indiv	40 18	•••	2 1	•••	•••
Hospitals, Sanatoriums and	<b>ွ</b> စွ	vnership Control		9	nets	er of	÷+	Philippine Iron Mine Hosp.	Gen	NPAssn	83	•••	4		
Related Institutions	Type of Service	Owne or Cc	Beds	Average	Bassinets	Number ( Births	Admís. sions †	Legaspi, 52,756—Albay Bleol Treatment Station Milwaukee Hospital	. Lepro	Gor't Church	250 52	•••	٠.	•••	•••
Augeles, 30,543—Pampanga Augeles Hospital	Gen	Indiv	24 24		_	ZA 	≪ 78	University of the Philippine	es				-	•••	
Bacolod, 19,350—Occidental No Occidental Negros Provinci	egros al	A						Los Banos Infirmary Lubuagan, 226—Kalinga Lubuagan Public Hospital.	. Gen	Gov't	25	•••	2	•••	•••
Provincial Maternity and Children's Hospital	Gen	Gov't	100		. 6	•••	•••	Lucena, 11,939—Tayabas		Gov't	10	•••	2	•••	***
Bagulo, 5,464—Benguet Bagulo Hospitalo		Gor't	62 80		. 18			Tayabas Provincial Hospit: Makati, 12,470—Rizal	ul Gen	Gov't	80	•••	3	•••	•••
Hospital Notre Dame de Lourdes		Church			. 10			Hospital Espanol de Santi-	. Gen	NPAssn	75	•••	17		
Mercy Hospital St. Francis Hospital	Gen	Indiv Corp	18 25		9 4	13	314	Malaybalay, 9,868—Bukidnon Bukidnon Public Hospital. Malolos, 26,444—Bulacan	. Gen	Gov't	16	•••			•••
Station Hospital	Gen	Army	50				•••	Bulacan Provincial Hospita	al Gen	Gov't	45	•••	6		

PHILIPE	INES	Cont	inue	ď			1	PHILIPPINES—Continued	
		들면			<u>8</u>	oţ	1	roll transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfe	
Hospitals, Sanatoriums and	o of vice	Ownership or Control	02	Average Census †	Bassinets	Number Births	sig t	Type of Service Ownership or Control Deds  Average Census †  Beds  Average Control Assincts  Mumber of Mumber of Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Avera	. <del>.</del>
Related Institutions	Type Servic	0.41 0.10	Beds	Ave	Bas	Nun	Admis sions †	Hospitals, Sanatoriums and Arthur Beds Services Constitutions Services Services Arthur Burthy	stons †
Manapla, —Occidental Negros North Negros Sugar Com-				•			1	Zamboanga, 30,798—Zamboanga Brent Hospital Gen Church 60 5	
pany Hospital	Gen :	NPAssn	63	•••	4	•••	]	Station Hospital Gen Army 26 3	74
National Psychopathic Hos-		Cowle 0	075				}		
pital Mandaue, 21,464—Cebu	Ment	Gov't 2	,975	•••	••	•••		PUERTO RICO	
Eversley Childs Treatment Station	Lepro	Gov't	780		••		}	Hype of Service Ownership or Control Ownership or Control Ownership or Control Ownership or Control Ownership or Control Ownership of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships of Control Ownerships o	
Manila, 285,306—Rizal Bilibid Hospital		Gov't	300		6	•••		Hospitals, Sanatarius Service Ownershir or Contro or Contro Consus †  Beds Average Consus † Brassnets	Admis- sions †
Chinese General Hospital Hospital de San Juan de	Gen	NPAssn	150	•••	18	•••		Hospitals, Sanatoriums and OACO OOO OOO OOOOOOOOOOOOOOOOOOOOOOOOO	28
Dioso	Gen Gen	Church NPAssn	$\frac{272}{70}$	• • •	36 12			Arccibo, 12,863—Arccibo Olinica Dr. Susoni Gen Indiv 124	
Mary Johnston Hospital Maternity and Children's	Gen	Church	81	66	29	774	1,814	Bayamon, 12,986—San Juan	
Hospital Philippine General Hosp **	MatCh Gen	Gov't Gov't	$\frac{72}{710}$	•••	45 185		:::	HARDITALKA	,214
Sacred Heart Hospital St. Joseph's Hospital	Gen	Indiv Corp	30 75	•••	20		:::	Clinica San Raisei Gen ind.	589
St. Luke's Hospitalo	Gen	Church	150 106	78	10	411		Cayey, 5,953—Guayama Clinica Font	525
St. Paul's Hospital St. Theresita's Hospital	Gen	Church Indiv	65	• • •	10	• • •	•••		914
Sampaloc General Hospital San Lazaro Hospital	TbIso		30 1,343	:::		:::		Tajardo Charity District Hospital**	,789
Sternberg General Hospital.	Gen	Army	317	242	8	184	4,390	Guayama, 10,953—Guayama Guayama Tuberculosis Sana-	
Margosatublg, —Zamboanga Margosatublg Emergency Hospital	. Gen	Gov't	18					torium TB Govt 100	•••
Mati, 6,440—Davao Mati Emergency Hospital		Gov't	6					Clinica Orienta Gen Part 41	818 1,244
Naga, 9,396—Camarines Sur	· CLA	40.0						Ryder Memorial Hospital Gen Church	
Camarines Sur Provincial Hospital	. Gen	Gov't	22 45	•••	iö	• • •	:::	Catalina Figueras Memoriai Hospital	•••
Hospital Virgen Milagrosa Olongapo, —Zambales		Indiv		• •	6			Juana Diaz, 2,466—Ponce Municipal Hospital Gen City 40	•••
Camilla Simpson Hospital.  Paracale, 6.378—Camarines No.	rte	City	16	• •	-	•••	•••	Movaguez 37.060—Mayaguez	560
Marsman General Hospital. Pasay, 18,823—Rizal	. Gen	NPAssn	60	•••	3	•••	•••	Mayaguez and Western Poly-	,410
Harrison Hospital Manila Sanitarium and Hos	. Gen	Indiv	30	•••	5	•••	•••		•••
nitalo	. Gen	Church Indiv	50 25	•••	7 5		•••	Ponce, 53,430—Ponce Clinica Quirurgica Dr. Pila Gen NPAssn 163 124 29 72 3,	,124
Mercy Hospital Port Lamon, —Surigao		NPAssn	14					Hospital Municipal Valentin	306
Port Lamon Hospital . Puerto Princesa, 5,827—Palawa	ın		16	•••	••	•••		Trouber Blind Asylum Inst State 110 00 10 107	741
Puerto Princesa Hospital Quezon City, 2,636—Rizal	. Gen	Gov't	10	• • • •	••	•••	•••	Sonto Asilo de Damas Hos-	
Philippine Army General	. Gen	State	120	•••			•••	m-bassylogic Hospital and	<i>56</i> 9
Quezon Institute Rio Guinobatan, —Masbate	. TB	NPAssn	666	•••	••	•••	•••	Center 13 doc San Juan	83
Mashate Consolidated Mini	ng Can	NPAssn	24		2			Clinica Dr. M. Julia Lepro Gov't 80	
Company Hospital Sagada, 167—Bontoc		Church	50		. 5			Insular Tuberculosis Salia TB Gov't 846 839 DU 1,	,142
St. Theodore's Hospital San Ternando, 19,885—La Unio	n						1,373	Psychiatric Hospital of Ment Gov't 1,065 "	•••
Bethany Hospital	Gen	Church Indiv	40 22		6		• • • •	Sanatorio de la Societato	
Pampanga Provincial Hos	p. Gen	Gov't	44		. 0	• •••	•••	y Beneficencia de Puerto Gen NPAssn 120 95 25 122 1, RIco	,417
San Jose, -Mindoro	. Gen —Antiqu	NPAsso 18				•••	•••		•••
	al Gen	Gov't	16	• ••	• ••	• •	•••	San Juan, 114, 115 Jun tuan Gen City 406 6 61 2,	510
San Juan del Monte, 6,618—Ri Manila Heights Hospital .	Gen	Indiv	100			•••	•••	Clinica Diaz Garcia. Gen Indiv 160 by se ci 21	000
San Miguel, 18,147—Bulacan		County	12			•••	•••	Clinica milanat	701
San Pablo, 31,214—Laguna San Pablo Hospital San Roque, —Cavite		City	20			•••	•••	Puerto Rico Gen Church 120 97 25 533 27	750
San Roque, —Caylte San	Gen	Vibal	14	٠. ١	. 10		***	Station Hospital of the School	751
Santa	<b>-</b>	Cont	467	,				01 Tropical Access 60 15 31	791
West Station Santa Cruz, 14,151—Laguna Proposed Hospita	Lepro	GOVI	56		. 19			Santurce, —San Juan Hospital Mimiya Gen Indiv 100	
Laguna Provincial Hospits Silay, 23,065—Occidental Negr		GOVI	Đ.		•			Utuado, 4,758-Arecto	47
Silay Maternity and Children's Hospital	Gen	CyCo	23	3	7 (	6 66	5 507	Clinica San Mayaguez Yauco, 8,607—Mayaguez Clinica "El Amparo" Gen Indiv 22 1 1 1	
Sorsogon, 17,049—Sorsogon Sorsogon Provincial Hos		Gov't	1	4	. (	ß	•••		
Tacloban, 15,478 Leyte	Gen	Church	40		. ;				
Bethany Hospital Leyte Provincial Hospital	Gen	Gov't	41		. 1	_		Hospitals, Sanatoriums and Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Contro	103
	Gen	Gov't Church	31 1 51	0	: :			Hospitals, Sanatoriums and Related Institutions Hospitals, School Related Institutions Hospitals	ato o
14	_			_				Related Institutions 200 00 12 12 120 1,2	201
•	. Indu	NPAssi	1 1	5		• •••	• • • • •	Charlotte Amane, 7,000 Gen CyCo 100	
	Gen	Gor't	3	5	. (	в		Christiansted, 3 Manielpal Hos-	202
**	al Mate	ch Gov't	1	2	• •	4		pital	2
Reyes Hospital tilu Can	Gen	Indiv	10	0	1 :	2 56			rā
Vigan, 17,761—110cos Bull Hos	p., Gen	Gov't	3	5 2	3 4	4 2	3 1,300	Leprosy Frederiksted, 2,698—St Croix Island Frederiksted Municipal Hosp. Gen City 66 47 13 73 1.7	
Philippine Christian Instit Hospital		Church	3	0 -	. 1	5			
Hospital				Key to	syr	nbols a	ana abb	reviations is on page 1071	

### SCHOOLS FOR CLINICAL LABORATORY TECHNICIANS

The original survey of 196 schools for clinical laboratory technicians was published in The Journal, Aug. 29, 1936, together with the first list of 96 approved schools. Essentials had been formulated by the Council on Medical Education and Hospitals of the American Medical Association, with the cooperation of the American Society of Clinical Pathologists and ratified by the House of Delegates of the American Medical Association in May 1936.

There are currently 174 such schools on the approved list. The returns from these schools indicate that 917 students were graduated during the year 1941. This represents an increase of 216 graduates as compared with the previous year. In general, the enrolment in these schools is small, only 41 schools having a

maximum enrolment of 10 or more students.

One hundred and thirteen of the approved schools report that all their graduates find positions locally, and 61 schools report that their graduates are somewhat in excess of the local needs. The statistics in general suggest that the present demand for technicians undoubtedly exceeds the number that are being graduated each year. During the calendar year 1941 there was a total of 1,084 students in the approved schools. The maximum number of students that could be accommodated in the present approved schools is 1,254.

During the past year changes have been made in the prerequisites for admission in the Essentials of an Acceptable School for Clinical Laboratory Technicians,

as follows:

(a) Two years of college work, including chemistry and biology, from an accredited college or university. After Jan. 1, 1943 this requirement shall read: Two years of college work, including general chemistry, quantitative chemistry and biology from an accredited college or university. Bacteriology may be substituted for biology. Organic chemistry and physics are highly recommended.

(b) Graduation from a school of nursing recognized by the state board of nurse examiners, and in addition college

themsuy.

After Jan. 1, 1943 requirements for nurses shall include one year of college work, 30 semester hours (45 quarter hours), including courses in chemistry and biology.

The majority of the approved schools require for admission two years of preliminary college training,

while approximately one fourth of the schools require a degree from an acceptable college. A few schools accept nurse training in lieu of a portion of the required college work. Although two of the schools affiliated with colleges are apparently admitting students directly from high school, the required courses extend over four or five years and include all the prerequisites for admission to approved schools.

The length of the course within the schools themselves is twelve months in 77 per cent of the schools. Other schools have programs ranging from fifteen to

twenty-four months duration.

It is now possible to indicate the number of approved schools which have definite affiliations with colleges and universities. Fifty-eight schools report that they have entered into such affiliations as a result of which students receiving their prerequisite training in a university or college receive their hospital training in a designated institution. Forty-four colleges having such affiliations are granting college credit for the time spent in the school for the training of laboratory technicians. This credit ranges from one-half semester to two years, with the majority reporting one complete year of college credit, given to the students who are properly enrolled on completion of their course as a laboratory technician.

Approximately 48 per cent of the schools charge no tuition. Some affiliated with universities charge the usual university fees. The tuition in the other schools varies from \$25 to \$300. Only approximately 15 per cent of all schools have a tuition charge of more than \$150.

There is definite evidence of an increasing demand for laboratory technicians as well as an increasing interest in this field on the part of college women.

Correspondence regarding schools for the training of clinical laboratory technicians should be addressed to the office of the Council on Medical Education and Hospitals. Graduates of approved schools desiring registration should communicate with the Board of Registry of Medical Technologists, Ball Memorial Hospital, Muncie, Ind.

Note: The list of approved schools appears on pages 1138-1142.

### SCHOOLS OF OCCUPATIONAL THERAPY

At the Milwaukee Session of the House of Delegates of the American Medical Association in 1933 a resolution was introduced that some plans be effected for the establishment of standards, ratings and inspections of training schools in occupational therapy. This program was referred to the Council on Medical Education and Hospitals, and all of the 13 existing schools were surveyed. Essentials of an Acceptable School of Occupational Therapy were ratified by the House of Delegates of the American Medical Association at the Atlantic City session in 1935, such standards to become effective on Jan. 1, 1939. A report of the Council on Medical Education and Hospitals to the House of Delegates in 1936 contained the names of 4 schools which had already met these standards. There are currently 6 schools on the approved list.

The occupational therapist is trained to work under the direction of a physician and should be capable of suggesting programs designed to recreate specific functions or to encourage restoration of impaired functions.

The 1941 questionnaires returned by the 6 schools currently approved indicate that 118 students were graduated from these schools. There are 162 additional students who are expected to graduate in 1942.

Prerequisites for enrolment in an approved occupational therapy school include one year of general college, while 1 school requires two years of college work. Although 4 schools admit students directly from high school, the required courses extend over a period of five years and include all the prerequisites for admission to approved schools of occupational therapy. The courses based on one or two years of preliminary college work operate on a twenty-seven month or three year program. All schools grant a diploma when the student graduates, while 4 offer a bachelor's degree in occupa-

### APPROVED SCHOOLS OF OCCUPATIONAL THERAPY

Name and Location	Director	College or University Affiliation	Duration	Enrol- ment Starts	Entrance Require- ments	Tuition	Certificate, Diploma, Degree	
Boston School of Occupational Therapy, 7 Harcourt St., Boston	Mrs. John A. Greene	None	30 consecutive mos.	September	1 yr. coll.	\$300 yr.	Diploma	26
Kalamazoo State Hospital School of Occupational Therapy, Kalamazoo, Mich.	Miss Marion R. Spear, B.S.	Western Michigan College of Education, Kalamazoo	27 consecutive mos. for diploma and 5 yrs. for degree course	April and October	1 yr. coll. for diploma course; high sch. grad. for degree course	\$70 yr. at Western Michigan College	Diploma or B. S. Degree	7
St. Louis School of Occupational and Recreational Therapy, 4567 Scott Avenue, St. Louis	Miss Geraldine R. Lermit, A.F	Washington B. University, St. Louis	3 yrs. for diploma and 5 yrs. for degree course	September	2 yrs. coll. for diploma course; high sch. grad. for degree course	\$325 yr.	Diploma or B. S. Degree	10
Philadelphia School of Occupational Therapy, 419 South 19th Street, Philadelphia	Miss Helen S. Willard, A.B.	University of Pennsylvania, Philadelphia	3 yrs. for diploma and 5 yrs. for degree course	September	1 yr. coll. for diploma course; high sch. grad. for degree course	\$600 for 3 yr. course; candidates for degree pay univ. fees	Diploma or B. S. Degree	26
Milwaukee-Downer College, Department of Occupational Therapy, 2512 East Hartford Avenue, Milwaukee	Miss Henrietta McNary	Milwaukee- Downer College	3 yrs. for diploma and 5 yrs. for degree course	September	1 yr. coll. for diploma course; high sch. grad. for degree course	\$250 yr. for diploma course; \$230 yr. for degree course	Diploma or B. S. Degree	13
University of Toronto, Department of University Extension, Toronto, Ont., Canada	Mr. W. J. Dunlop, Director of University Extension and Publicity Miss Helen P. LeVesconte, Supervisor of Course	University of Toronto	30 consecutive mos.	September	1 yr. coll.	\$175 yr.	Diploma	36

tional therapy. Only 1 school admits male students to its regular classes.

The annual tuition varies from \$70 to \$325.

Correspondence regarding schools training occupational therapy technicians should be addressed to the office of the Council on Medical Education and Hospitals. Graduates of approved schools desiring registration should communicate with the American Occupational Therapy Association, 175 Fifth Avenue, New York City.

## SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS

The House of Delegates of the American Medical Association in 1934 requested that some plan be effected for the establishment of standards, ratings and inspections of training schools for physical therapy technicians. The Council on Medical Education and Hospitals assumed responsibility for this program and by 1936 had completed a survey of these schools. Certain minimum standards were formulated. These were presented to the House of Delegates of the American Medical Association and were ratified in May 1936. The first published list of 13 approved schools for physical therapy technicians appeared in The Journal in August 1936. At present there are 16 approved

In 1941, to meet the emergency requirements of the Army, a concentrated curriculum involving intensive courses in the basic principles of physical therapy was Such courses with the instituted by nine schools. approval of the Council include a minimum of experience consisting of eight hundred hours of theory and laboratory work as well as two hundred hours of practice within a six months period. Additional schools are considering the adoption of similar programs. The shortening of the training program occurs in the clinical practice. Graduates of such courses are not considered qualified technicians but are eligible for the U. S. Civil Service rating of Apprentice Physiotherapy Aide and therefore are available for service in the armed forces. The schools offering these concentrated courses are certifying the students' training in the basic sciences and grant a certificate after an additional six months of satisfactory experience and training in the armed forces. After receiving this certificate the student is eligible for promotion to the rank of Physiotherapy Aide by the U. S. Civil Service Commission and for registration by the American Registry of Physical Therapy Technicians.

The 1941 questionnaires returned by the sixteen schools currently approved indicate that 168 students can be trained in the regular courses, while 400 can be trained in the emergency courses. There was a total of 238 graduates last year, including only 84 students who completed the concentrated six months curriculum.

The common experience of the schools charging tuition is that they cannot obtain enough students to fill their classes in spite of the large number of applications. Aside from the schools charging no tuition, the fees vary from \$200 to \$547 for the regular course and from \$200 to \$286 for the emergency course.

The acute shortage of physical therapy aides reported by the Central Physical Therapy Board of the Office of the Surgeon General of the U. S. Army has been referred to the Council and is being studied by it. The available facilities for training 400 students in the emergency courses in addition to the facilities for the training of 168 students in the regular courses would appear to indicate that there is now ample provision for the training of students if a sufficient number of individuals can be interested in undertaking such training.

Correspondence regarding schools for physical therapy technicians should be addressed to the Council on Medical Education and Hospitals. Graduates of approved schools desiring registration should communicate with the American Registry of Physical Therapy Technicians, 30 North Michigan Avenue, Chicago.

# SCHOOLS APPROVED FOR TRAINING PHYSICAL THERAPY TECHNICIANS

By the Council on Medical Education and Hospitals

				Duration	lon	Time of Admission	of solon		
Name and Location of School	Medleal Director	Technical Director	Entrance Requirements *	Regular F Course	Emergency	Regular Course	Emergency	Tultion **	Diploma ** Degree
Children's Hospital, Los Angeles	Steele F. Stewart, M.D.,	Miss Lily H. Graham	<ul><li>(a) R. N.</li><li>(b) Phys. educ. major</li><li>(c) 2 yrs. coll.</li></ul>	12 mos.	6 mos.1	Feb. and Sept.	Feb. and Sept.	\$200 R \$200 E	Diploma R Certificate E
Stanford University, Stanford University, Calif	William H. Northway, M.D	Miss Catherine Worthingham, A.B., M.A	<ul><li>(a) R. N.</li><li>(b) Phys. educ. major</li><li>(c) 3 yrs. coll.</li></ul>	12 mos.1	7 mos.¹	Jan, and June	Jan. and June	\$429 R \$286 E	Certificate or B. A.
Walter Reel General Rospital, Washington, D. C Northwestern University Medical School, Chicago	B. A. Strickland, Jr., Capt., M.C. John S. Coulter, M.D	Miss Emma E. Vogel, Miss Gertrude Beard, R.N	Phys. educ. major (a) R. N. (b) Phys. educ. major (c) 3 yrs. coll.	9 mos.1	6 mos.	Oet.	Quarterly Jan. and July	None \$200 R \$200 E	Certificate Certificate
Bouvé.Boston School of Physical Education, Boston Arthur L. Watkins, M.D.,	Arthur L. Watkins, M.D	Miss Constance K. Greene	High seh. grad.	3 yrs. 4 yrs.²	:	Sept.		\$100 yr.	Diploma or B. S.
Harvard Medleal School, Boston Frank R. Ober, M.D	Frank R. Ober, M.D	Miss Janet B. Merrill	<ul><li>(a) R. N.</li><li>(b) Phys. educ. major</li><li>(c) 2 yrs. coll.³</li></ul>	9 mos.	6 mos.1	Sept, and March	Sept. and March	\$200 R \$200 E	Certificate
Boston University, Sargent College of Physical Education, Cambridge, Mass Louis Howard, M.D	Louis Howard, M.D	Mrs. Lucille W. Fuller	2 yrs. coll.	2 yrs.	•	Oct.	•	\$547	Certificate and B. S.
Posse Institute, Kendal Green, Mass	M. E. Knapp, M.D	Miss Lucy G. Marshall	High sch, grad. 3 (a) R. N. 12 (b) Phys. educ. major (c) Medical technology grad. with B.S. degree	3 yrs. ¹ 12 mos. ¹ ree	::	Sept. June and Sept.		\$415 yr. Univ. fees	Diploma Certificate
Mayo Clinic, Rochester, Minn	Frank H. Krusen, M.D	Mr. Carl O. Moe, R.N	<ul><li>(a) R. N.</li><li>(b) Phys. educ. major</li><li>(c) 2 yrs. coll.</li></ul>	:	6 mos. ¹		Jan. and July	None	Certificate
St. Louis University School of Nursing, St. Louis	Alexander J. Kotkis, M.D	Sister M. Consella, R.N	High sch. grad.	4 yrs.1	:	Jan. and Sept.		\$250 yr.	B, S.
University of Busialo School of Nursing, Busialo	George G. Martin, M.D	Miss Edna Beaver, R.N	<ul><li>(a) R. N.</li><li>(b) Phys. educ. major</li><li>(c) 2 yrs. coll.</li></ul>	12 mos.¹	6 mos.1	Feb. and Sept.	Feb. and Sept.	\$425 R \$375 E	Certificate
Hospital for Special Surkery, New York City	Kristlan G. Hansson, M.D	Miss Ethel M. Willmer	<ul><li>(a) R. N.</li><li>(b) Phys. educ. major</li><li>(c) 2 yrs. coll.</li></ul>	9 mos.1	6 mos.1	Sept.	Sept.	\$300 R \$200 E	Diploma
	Jesele Wrlght, M.D	Miss Dorothy Loydahl	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll. ⁵	2 yrs,1	6 mo9.1	Sept.	Jan. and July	None R \$200 E	Diploma R Certificate E
William and Mary, Richmond, Va.	Thomas W, Wheeldon, M.D	Miss Allee Jones	(a) B. N. (b) Phys. educ. major (c) Coll. grad. (d) High sch. grad.	9 mos. 4 yrs.	:	Feb. and Sept.		Coll. fees	Certificate or B. S.
University of Wisconsin Medical School, Madison	Ernst A. Pohle, M.D	Miss Margaret Kohil, B.S	(a) R. N. (b) Phys. educ. major	12 mos.1		Feb. and Sept.		Univ. fees	Certificate

[•] Courses are so arranged that any of the entrance requirements (a, b, c or d) will qualify students for training.
• R = Regular course; E = Emergency course,

^{1.} Male students are admitted. 2. Four year course leads to B.S. degree from Simmons College. 3. This group admitted to emergency course only.

^{4.} Emergency course offered in cooperation with Harvard Medical School.

5. Only those with three years of college are admitted to emergency course.

Schools Approved for Training Clinical Laboratory Technicians by the Council on Medical Education and Hospitals

iniversity and not the pathologist in charge. Those who wish to enroll in a course given by the college or university or Br. fee, under "Tuition" indicates breakage fee. Degrees mentioned in last column are granted by affliated colleges and universities.

Students lacking the scholastic requirements should correspond with the registrar and not the path	with the registrar and not the	ologist.							
who desire to transfer their crouts storic			Credit Allowed by Affiliated College or University for Time Spent	Entrance Regulre- ments I	Duration	Time of Admission	Maxi- mum Enrol- ment	Tuition	Certificate, Diploma, Degree
	Pathologist in Charge Co. O. Williams, M.D	College or University Amination Arizona State Teachers College, Tempe	32 semester hrs.	3 yrs. coll.1	19 mos.	July	4	\$125	Certificate & Degree
4	E. L. Wilbur, M.D	lversi f Me	74 quarter hrs.	2 yrs. coll.	12 mos.	July		\$100 None	Certineate Diploma
		Six of Madion Frangelists.		Coll. degree Coll. degree	12 mos. 15 mos. 12 mos.	July & Aug. Monthly Sept.	* # 8	\$60 (Br. fee) \$100	Certificate Certificate
Children's Toshuch.  Los Angeles County Hospital, Los Angeles a.  Unite Memorial Hospital, Los Angeles a.  Collis P. and Howard Huntington Memorial Hos-  collis P. and Howard Huntington Memorial Hos-  collis P. and Howard	A. G. Foord, M.D.		Not settled	Coll. degree 2 yrs. coll. Coll. degree Coll. degree	12 mos. 12 mos. 12 mos.	July Varies Quarterly Varies	F61129	\$10 (Br. fee) \$120 (Br. fee) \$100 None	Certificate Certificate Certificate None
Mary's Help Hospital, San Francisco. Mt. Zion Hospital, San Francisco. University of California Hospital, San Francisco.			sad retained as	2 yrs. coll. 3 yrs. coll.	mos. mos.	June Summer quarter	13.2	None \$200 and \$20 (Br. fee)	Certificate B. S.
('hildren's Hospital, Denvera's E. I. Dobos, Al.D. Colorado General Hospital, Denvera's P. Hilkowitz, Al.D. Mercy Hospital, Denvera's P. Hilkowitz, Al.D.	E. I. Dolos, A.D. E. R. Mugrage, M.D. P. Hillkowitz, M.D.	University of Colorado, Boulder. University of Denver, Denver University of Denver, Denver		3 yrs. coll.	12 mos. 12 mos.	Quarterly Quarterly	~ ~	Univ. fees and \$5 (Br. fee) Univ. fees and \$5 (Br. fee)	જે. જે.
St. Anthony's Hospital, Denver "		. George Washington University,	None	2 yrs. coll.	12 mos. 13 mos.	July,Sept.& Nov. Varies	÷ €	None None	Certificate Certificate
providence Hospital, Washington	H. II. LeMer, M.D			3 yrs. coll.	12 mos.	June,July &Aug.	₹.	None	Diploma
FLORIDA Florida State Hospital, Chattahoochee a GFORGIA				Coll, degree Coll, degree	12 mos. 12 mos.	June to Sept. Jan. & June	-	None None	Certificate Certificate Certificate
Grafy Vospital, Atlanta Pichmont Hospital, Atlanta University Hospital, Augusta ^b Emory University Hospital, Emory University	W. B. Matthews, M.D	University of Georgia School Medicine, Augusta Graduate Emory University Graduate School, Emory University		Coll, degree	12 mos. 12 or 18 mos.	Sept. Oct.	21 00	\$225 (18 mos.) None (12 mos.) \$5 (Br. fee)	M. S. (18 mos.) (ertificate (12 mos.)
Michael Reese Hospital, Chicago	K. M. Howell, M.D	Northwestern University Medi- cal School, Chicago		2 yrs. coll. 2 yrs. coll. 2 yrs. coll. (12 mos.)	12 mos. 18 mos. 12 or 18 mos.	Monthly Every 2 mos. Monthly	## E	\$100 \$170 und \$10 (Br. fce) \$50	Certificate Diploma M. S. (18 mos.) Certificate
Provident Hospilal, Chengo	J. H. Lewis, M.D.			(18 mos.) 2 yrs. coll. 2 yrs. coll. or RN with 1 yr.	12 mos. 18 mos.	Oct.		\$100 \$200 and \$10 (Br. fee)	Certificate Certificate
Tyanston Hospital, Evanston St. Francis Hospital, Peoria *				chemistry Coll. degree 2 yrs. coll. 2 yrs. coll. 2 yrs. coll.	12 mos. 12 mos. 12 mos.	Feb. & July Sept. Sept. Sept.	තර බෞ	\$100 \$100 and \$10 (Br. fee) \$50 \$100 and \$15 (Br. fee)	Certificate Certificate Diploma
St. Therese's Hospital, Wankegun.									

INDIANA Indiana Eniversity Medical Center, Indianapolis ^b Methodist Hospital, Indianapolis ^s	G. G. Culbertson, M.D	Indiana University, Bloomington	64 semester hrs.	2 yrs. coll, 2 yrs. coll, (24 mos.) Coll. degree	12 mos. 12 or 24 mos.	June, July & Aug.	8 10	None None	Certificate Certificate
South Bend Medlenl Laboratory, South Bend 2	. A. S. Glordano, M.D			(12 mos.) 2 yrs. coll.	18 mos.	Jan. & Sept.	e1	\$125	None
KANSAS Bethany Hospital, Kansas City University of Kansas Hospitals, Kansas City ab		University of Kansas, Lawrence	s semester hrs. In graduate school	Coll, degree Coll, degree	18 mos. ⁶ 12 or 18 mos. ⁶	Feb. & July Jan. & July	14	None None	Certificate Certificato
St. Francis Mospital, Wichita	. C. A. Helbulg, M.D	Municipal University of Wichita, Wichita	None	2 yrs. coll. 2 yrs. coll.	12 mos. 12 mos.	Sept. Fall	ອອ	\$150 \$150 and \$5 (Br. fee)	Díploma Certificate
KENTUCKY Good Samarkan Rospkal, Lecington 6	. E. S. Maxwell, M.D	University of Kentucky, Lex-	34 semester hrs.	3 yrs. coll.	12 mos.	Feb. & Sept.	50	Univ. fee and	Diploma 8. R. S
St. Ioseph's Rospital, Lexington	, E. S. Maxwell, M.D			2 yrs. coll.	12 точ,	Jan. & Sept.	74	\$150 and \$150 and \$10 (Br. fee)	Certificate
Kentucky State Department of Health Laboratory, Louispille	, I., H. South, M.D			2 yrs. coll,	12 mos.	Feb.,July &Sept.		\$300 and \$10 (Br. fee)	Diploma
Norton Memorial Instrumry, Louisville	E. S. Grenwood, M.D. H. M. Weeter, M.D. H. M. Weeter, M.D.	Nazareth College, Louisville Nazareth College, Louisville	18 semester hrs. 18 semester hrs.	2 yrs. coll. 2 yrs. coll. 2 yrs. coll.	12 mos. 12 mos. 12 mos.	Quarterly Sept. July & Sept.	६३ च्य च्य	\$150 \$200 \$120	Certificate None Certificate
Charlty Hospital, New Orleans ***	E. S. Moss, M.B. M. Courer, M.D. G. H. Hauser, M.D. W. P. Buther, M.D. W. R. Mathews, M.D.	Loyola University, New Orleans Loyola University, New Orleans	None None	Coll. grad. Coll. grad. Coll. grad. 2 yrs. coll. Coll. degree	12 mos. 12 mos. 12 mos. 12 to 12 to	Monthly Sept. Feb. Jan. & July	ນັ້ນ ;ແ <i>ລ</i>	None Univ. fees \$50 None	None B. S. Certificate None
MAINE Central Maine General Hospital, Lewiston	J. Gottlieb, M.D			Coll. degree	12 mos.	Quarterly	12	\$100	None
MARYLAND Mercy Hospital, Baltimore	H. T. Collenberg, M.D			2 yrs. coll. or RN+ 1 yr. coll.	20 тов.	Sept.	#	\$200	Certificate
MASSACHUSETTIS Trailkner Hospital, Boston D. Merey Hospital, Springfield, Worcester Clip Hospital, Worcester Worcester State Hospital, Worcester	G. K. Mallory, M.D. J. E. Dwyer, M.D. R. H. Goodale, M.D. J. M. Looney, M.D.	Simmons College, Boston	32 semester hrs.	Coll, degree 2 yrs. coll. 2 yrs. coll. Coll, degree	12 mos. 12 mos. 12 mos. 12 mos.	Feb. & Sept. Quarterly Every 2 mos. Jan. & July	ne e e e	\$225 Br. fee None None	Dlploma Certificate Diploma Certificate
MICHIGAN Iella Y. Poet Montkomery Hospital, Battle Creek Mery Hospital, Bay City a			30 semester hrs. 20 semester hrs.	Coll, degree 2 yrs. coll. 3 yrs. coll. 2 yrs. coll.	12 mos. 12 mos. 12 mos. 12 mos.	Jan, June & Aug. Varles July Jan, May & Sept.	e. 48%	\$25 (Br. fee) \$150 \$100 \$150 & \$150 & \$10 (Br. fee)	Certificate Diploma Certificate Certificate
Hevry l'ord Hospital, Detrolt d'	F. W. Hartman, M.D	Graduate School of Wayne University, Detroit	30 semester hrs.	Coll, degree	18 mos.	Varies	10	None	Certificate
Proxidence Hospital, Detroit h. Woman's Hospital, Detroit b.	D. H. Kaump, M.D D. C. Beaver, M.D	Wayne University, Detroit Wayne University, Detroit, or	30 semester hrs.	3 yrs. coll.1	12 mos.	Quarterly	80	\$100	Diploma
l'iose Nospital, L'iose b	S. E. Gould, M.D	Lansing State College, East Wayne University, Detroit, or Michigan State College, East	30 semester hrs.	3 yrs. coll.1	12 mos.	July & Oct.	G	\$100	Certificate
Unrley Hospital, Filat	0, R. Backus, M.D	Lausing State College, Enst	30 semester hrs.	3 yrs, coll.1	12 mos.	Feb. & July	<b>-</b> (	None	Diploma
Wodgett Memorial Rospital, Grand Rapids a 1	C. A. Payne, M.D	Lansing Michigan State College, East Lansing	30 semester hrs.	3 yrs. coll.	12 mos.	ynt, aluf.	51 <del>4</del>	None \$120	. s. c.
Edward W. Sparrow Hospital, Lansing	C. E. Black, M.D	Michigan State College, East Lansing	30 semester hrs.	3 yrs. coll.	12 mos.	Varies	30	\$25 quarter	Diploma
8t. Laurence Hospital, Lausing	C. E. Black, M.D	Michigan State College, East Lansing	30 semester hrs.	3 yra. coll.	12 mos.	Varies	47	25 \$5	Diploma & B. S.

# Schools Approved for Training Clinical Laboratory Technicians by the Council on Medical Education and Hospitals-Continued

			Credit Allowed by Affillated						
Name and Location of School	Pathologist in Charge	College or University Affiliation	College or University for Time Spent in Hospital	Entrance Require- ments	Duration	Time of	Maxi- mum Enrol-		Certificate, Diploma,
St. Luke's Hospital, Duluth. St. Mary's Hospital, Duluth.	A. H. Wells, M.DJ. J. J. Grabow, M.D	College of St. Scholastica, Duluth	30 semester hrs.	3 yrs. coll.	24 mos.5	July For & Tuly	10	Br. fee	DeBree
	F. C. Andrus, M.D	University of Minnesota, Minne-	As arreston been			Aine & enis	4	\$10 (Br. fee)	& B. S.
Swedish Hospital, Minneapolis b	G. R. Drake, M.D	Gustavus Adolphus College, St.	30 samostar bre	9 yrs. coll.	iz mos.	Every 20 da.	18	None	B. S.
University Hospitals, Minneapolis a	G. T. Evans, M.D		o source of the	2 y18, com.	24 mos.e	July & Sept.	ō	\$125 yr.	Certificate & B. S.
	J. F. Noble, M.D		46 quarter hrs.	3 yrs. coll.	12 mos.	Varies	43	Univ. fees	B. S.
	K. Ikeda, M.D	apolis Macalester College, St. Paul	46 quarter hrs. 30 semester hrs.	3 yrs. coll. 3 yrs. coll.	12 mos. 12 mos.	Spring & summer July	9	None \$110	B. S. Certificate
	L. S. Llppincott, M.D			2 yrs. coll.	24 mos.	Varies	10	\$50 (Br foo)	& A. B.
Kansas City General Hospital, Kansas City	V. B. Bubler, M.D.			,			•	φος ( <b>DI</b> : 166)	Oct tanca te
Kunsas Olty General Hospital No. 2, Kansas Olty. Menorah Hospital, Kansas Citya. Research Hospital, Kansas City.	V. B. Buhler, M.D. R. Korltschoner, M.D.			2 yrs. coll. 2 yrs. coll. Coll. degree	18 mos. 18 mos. 15 mos	Jan. & July Jan. & July Verice	£1 :°	None	Certificate Certificate
St. Joseph Hospital, Kansas City St. Luke's Hospital, Kansas City St. Marys Hospital, Kansas City	F. C. Herr, M.D. F. C. Televig, M.D.			2 yrs. coll. Coll. degree 2 yrs. coll.	12 mos. 15 mos.	Every 6 wks. Varies From 8 mes	0 S Z E	None None \$25 (Br. fee)	None None Certificate
Firmin Desloge Hospital, St. Louis b	G. O. Broun, M.D.	St. Louis University School of		Coll. degree	12 mos.	June to Sept.		\$10 (Br. fee) \$10 (Br. fee)	Diploma Certificate
Homer G. Philips Hospital, St. Louis a. St. Louis City Hospital, St. Louis. Burge Hospital, Springfield a b. MONTANA	S. H. Gray, M.D. S. H. Gray, M.D. E. B. Hanan, M.D.	Nursing, St. Louis.  Drury College, Springfleid	30 semester hrs.	High seh, grad. 2 yrs. coll. 2 yrs. coll. 2 yrs. coll. 2 yrs. coll.	5 yrs. 24 mos. 15 mos. 12 mos.	Each semester Varies Quarterly	ឡីព 🚣 ខ	Univ. fees None None See (Rr. fee)	B. S. None None
Muray Hospital, Butte a	R. F. Peterson, M.D	Montana State College, Boze-					,	(D) (D)	& B. S.
Columbus Hospital, Great Falls a b	T. F. Walker, M.D	man, or University of Mon- tana, Missoula	45 quarter hrs.	3 yrs. coll.	12 mos.	Varies	ဗ	Univ. fees	B. S.
Montulia Deaconess Kospitul, Great Falls & b	E. D. Hitchcock, M.D	Falls State College, Bozeman or University of Mon-	45 quarter hrs.	3 yrs. coll.	12 mos.	June to Sept.	က	None	B. S.
NEBRASKA Brynn Memorial Hospital, Lincoln		tana, Missoula	45 quarter hrs.	3 yrs. coll.1	12 mos.	Jan. & July	71	None	B. S.
Lincoln General Hospital, Lincoln University of Nebruska Hospital, Omaha ^b	J. M. Neely, M.D. J. P. Tollman, M.D.	University of Nebraska College		2 yrs. coll. 2 yrs. coll.	12 mos. 12 mos.	Feb.,June&Sept. Twice yearly	60 61	\$25 (Br. fee) \$50	Díplòma Diploma
Mary Illtchcock Manorlal Hospital, Hanover a	R. E. Miller, M.D.		51 trimester hrs.	2 yrs. coll.	12 mos.	June & Aug.	G	\$75	Certificate
NEW YORK Jewish Hospital, Brooklyn a.				3 yrs. coll.	12 mos.	Quarterly	9	\$50 (Br. fee)	Certificate
Buffulo General Hospital, Buffulos Edward J. Meyer Memorial Breatter Busen.				2 yrs. coll. 2 yrs. coll. Coll. grad.	12 mos. 18 mos.	Sept. Quarterly	16 6	\$300 None	Certificate Certificate
St. Joseph's Hospital, Ehnira a	D. K. Miller, M.D.	. University of Buffalo, Buffalo	32 semester hrs.	2 yrs, coll.	14 mos.	Varies	7.	\$20	Certificate
Jury Immeculate Hospital, Jamaica. Rochester General Hospital, Rochester a. Ella Hospital, Schenectady a b.	J. M. Bleyer, M.D. J. M. Pearce, M.D. I. A. Gaspar, M.D. E. Kellert, M.D.			2 yrs, colf. Coll, degree Coll, degree	18 mos. 12 mos. 19 mos. 18 mos.	Monthly Sept. Oct. Varies	10 \$ 6 \$ 14 \$	\$25 (Br. fee) \$50 \$35 (Br. fee)	Certificate Certificate Certificate
Samaritan Hospital, Troy			None	2 yrs. coll.	12 to 18 mos.	Spring & fall			Upioma
Duke Hospital, Durhinm & S. Watte Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Marker Mar	. D. T. Smith, M.D		oo semester ms.	3 yrs. coll.	12 mos.	Varies	<u> </u>	oll, fees	Certificate Diploma & B. S.
The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s			enov:	2 yrs. coll. 2 yrs. coll.	18 mos. 12 mos.	July Jun. & Inty		\$75 (Br. and health fees)	Certificate
						oun woung	9	²⁵ (Br. fee)	Certificate

		::00	24 semester hrs.	2 yrs. coll. 2 yrs. coll. 3 yrs. coll.	12 mos. 12 mos. 12 mos.	July July Sept.	¢1¢1 च	None None \$150	Certificate Certificate Certificate & B. S.
Mt. Sinni Hospital, Cleveland ^b	B. S. Kline, M.D	Western Reserve University, Cleveland Baldwin-Wallace College, Beren Western Reserve University, Cleveland	18 semester hrs.	2 yrs. coll.	12 mos.	June & Sept. June, July & Aug.	10	\$250 and \$15 (Br. fee) \$100	Certificate & diploma Certificate
Mt. Carmel Hospstal, Columbus	H. B. Davidson, M.D H. L. Relnhart, M.D	Ohio University, Athens	16 semester hrs.	3½ yrs. coll.	12 mos.	Feb. & Sept.	01 6	Univ. fees	B. S. Certificate
White Cross Hospital, Columbus Huron Road Hospital, East Cleveland Nersy Hospital, Toledo Toleto Hospital, Toledo	R. S. Fidler, M.D. E. Goodsitt, M.D. J. B. Rucker, M.D. B. Steinberg, M.D.	University of Toledo, Toledo	29 semester hrs.	Coll. degree 2 yrs. coll. 2 yrs. coll. 3 yrs. coll.	12 mos. 12 mos. 12 mos.	Jan. & June July Jan. & Sept. Feb. & Sept.	.c.440	None \$100 \$50 \$100 and \$10 (Rr. fee)	Certificate Certificate Certificate Certificate
	G. B. Kramer, M.D			2 yrs. coll. Coll. degree	12 mos.	Jan. & Sept. Varies Varies	ල ය ප	None None None	Diploma None None
	H. H. Foskett, M.D. C. H. Manlove, M.D.			Coll. degree 2 yrs. coll,	12 mos. 12 mos.	Varies Spring, summer	40	\$150 None	None None
	W. C. Hunter, M.D			2 yrs. coll. 2 yrs. coll.	12 mos. 12 mos.	Jan. & June Every 4 mos.	CI 🕁	None None	Certificate None
	Г. Я. Меппе, М.Д	University of Oregon Medical School, Portland	None	2 yrs. coll.	12 mos.	Varies	8	None	None
PENNSYLVANIA Ablington Memorial Hospital, Ablington 4,	I. Elman, M.D.	Moravian College for Women.		2 yrs. coll.	18 mos.	Every 11 wks.	1	None	None
	C. B. Reltz, M.D	Bethlehem Moravian College for Women,	24 semester hrs.	2 yrs. coll.	12 mos.	Varies	-ti- (	None	None
	M. M. Strumla, M.D	Bucknell University, Lewisburg.	24 semester hrs. 17 semester hrs. (undergraduate) 12 semester hrs.	3 yrs. coll, 2 yrs. coll, 3½ yrs, coll,	12 mos. 15 mos. 12 mos.	July & Sept. Quarterly Feb. & July	12 12 <del>4</del>	\$120 \$120 \$378 (coll. & hosp.)	Certificate B. S. or M. S.
Filtgerald:Mercy Hospital, Darby	P. J. Kennedy, M.D.	Moravian College for Women,	(Standard)	Coll, degree	12 mos.	Quarterly	₩.	\$50 (Br. fee)	Certificato
	G. R. Mofflet, M.D. F. B. Lynch, Jr., M.D. G. J. Bucher, M.D.	Bethlehem Jefferson Medleal College, Phlla-	24 semester hrs.	3 yrs. coll. 2 yrs. coll. 2 yrs. coll.	12 mos. 12 mos. 12 mos.	July Every 4 mos. Oct.	404	None \$100	B. S. Certificate Certificate
	a Bolmonn MD	delphia		2 yrs. coll.	18 mos.	March & Sept. Fob & Sont	6 6	\$100 and \$5 (Br. fee)	Certificate
	L. A. Soloff, M.D			2 yrs. coll.	12 mos.	June & July	9 63	\$120 and \$10 (Br. fee)	Certificate
	F. W. Konzelmann, M.D	Temple University, Philadelphia	60 semester hrs.	4 yrs. high sch.	4 yrs.	Monthly	40	25 yr. first 2 yrs.	B. S.
Monteslore Hospital, Pittsburgh, St. Johenha, Hospital, Reading, St. Accemb's Hospital, Reading, St. Accept St. Hospital, Seranton Control State Hospital, Seranton Control State Hospital, Seranton Wilkes-Barre General Hospital, Wilkes-Barre	K. Y. Yardumian, M.D. E. D. Funik, M.D. G. P. Deshardins, M.D. C. Martins, M.D. C. Raven, M.D. W. L. Lanyon, M.D.	Albright Gollege, Reading	16 to 18 sem, hrs.	Coll. degree 3½ yrs. coll. 2 yrs. coll. 4 yrs. coll. 2 yrs. coll. 2 yrs. coll. 2 yrs. coll. 2 yrs. coll.	12 mos. 12 mos. 12 mos. 12 mos. 12 mos. 12 mos.	July Sept. June & Sept. July, Aug. & Sept. Summer	रू चिचचा १२ १२ चा	4 150 Jr. 160 Cerl 150 Cerl 150 Cerl 150 Cerl 150 Cerl 150 Cerl 150 Cerl 150 Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150 None Cerl 150	Certificate B. S. Certificate Certificate Certificate
Knovville General Hospital, Knovville n John Gaston Hospital, Memphis b 1 St. Joseph Hospital, Memphis T Geo. W. Hubbard Hospital, Nashville a b v Nashville General Hospital, Nashville a v	R. H. Monger, M.D. H. C. Schmelsser, M.D. T. C. Moss, M.D. W. H. Graut, M.D. W. A. De Monbreun, M.D.	University of Tennessee College of Medicine, Memphis. Meharry Medical College, Nash- ville	2 yrs.	2 yrs. coll. Coll. degree 2 yrs. coll. 2 yrs. coll. 2 yrs. coll.	12 mos. 13 mos. 15 mos. 2 yrs. 12 mos.	July & Dec. Quarterly Quarterly Oct. Jan. & July	4 40 1001	\$10 (Br. fee) None \$10 (Br. fee) \$100 None	Diploma Certificate Certificate Certificate

# Schools Approved for Training Clinical Laboratory Technicians by the Council on Medical Education and Hospitals-Concluded

Credit Allowed

Certificate, Diploma, Dorrea	Ū		B.S.		Certificate	3 Certificate	fees Dinloma	None	None	None		) Certificate	Cortificate & B. S.				Diploma	& B. B. Certificate Certificate Certificate
Tultion	\$10 (Br. fee)	\$100	Univ. fees	S50 und S50	0074	Univ. fees	Univ. & Br. fees	None	None	None	\$50 (Br. fee) \$180 and	\$10 (Br. 1ee) \$150	\$10 (Br. fee)	\$10 (Library fee) None None	None \$40 \$30&\$15(Br.fee)	None None None	026 800	\$50 None None
Maxi- mum Enrol- ment	:	74	စ္	. 61 13		က	es	က	4	က	12 6	10	c:	0.00	# <b>9</b> 69		° 15	is is so
Time of Admission	Varies	Quarterly	June	Monthly Verley	Aures	June	Jan. & June	June & Sept.	June & Sept.	June & Sept.	Sept. July & Sept.	Varies	June, Aug. &Oct.	Varies Varies July, Aug. Scott.	Feb. & Sept. Apr. & Sept.	Jan. & July Jan. & July Jan Juro Sont	Sept.	Sept. July July
Duration	18 mos.	13 mos.	12 mos.	12 mos.	in mos.	12 mos.	12 mos.	12 mos.	12 mos.	12 mos.	12 mos. 18 mos.	18 mos.	12 mos.	12 mos. 12 mos. 12 mos.	mos.	18 mos. 19 mos. 18 mos.	12 mos.	12 mos. 24 mos. 21 mos.
Entrance Require- ments	2 yrs. coll.	2 yrs. coll.	3 yrs. coll.1	2 yrs. coll.		3 yrs. coll.	3 yrs. coll.	3 or 4 yrs. coll.	3 yrs. coll.	3 yrs. coll.	2 yrs. coll. 2 yrs. coll.	2 yrs. coll.	2 yrs. coll.1	2 yrs. coll. 3 yrs. coll. 2 yrs. coll. 2 yrs. coll.	3½ yrs. coll.1 2 yrs. coll.	2 yrs. coll. ('oll. grad. 2 yrs. coll.	3 yrs. coll.	2 yrs. coll, 2 yrs. coll, 2 yrs. coll.
by Affiliated College or University for Time Spent in Hospital		None	30 semester hrs.			45 quarter hrs.	45 quarter hrs.	45 quarter hrs.	45 quarter hrs.	45 quarter hrs.			30 semester hrs.	45 quarter hrs, 12 semester hrs,	16 semester hrs. 45 quarter hrs.	32 semester hrs.	31 semester hrs.	
College or University Affiliation	Baylor University School of	Medicine, Dallas Baylor University, Waco	Worth		University of Utah Salt I also		University of Utah, Salt Lake City University of Utah, Salt Lake	sity of Utah,	Utah,	City	Richmond Drofousion 1	Rehmond Professional Institute, Rehmond Professional Institute, College of William and Mary,		Seattle College, Scattle, University of Idaho, Moscow State College of Warth	Pullman eattle College	: :Z5		
Pathologist in Charge	E. Furey, M.D. J. M. Hill, M.D.	J. J. Andular. M.D.	J. E. Williams, M.D.	W. W. Coulter, M.D	G. W. Schelm, M.D.		d. A. Ogilvie, M.D	O. A. Ogilvie, M.D	O. A. Ogilvie, M.D		W. E. Bray, M.D. A. F. Strauss, M.D.	R. C. Beck, M.D		C. R. Jensen, M.D. G. A. L. Balle, M.D. G. A. M. Parder, M.D. M. M. Patten, M.D. R. F. E. Stler, M.D.	C. R. McColl, M.D. C. P. Latson, M.D.	W. E. Bayley, M.D. L. McGary, M.D. S. B. Pessin, M.D. W. D. Stovall, M.D.	H. K. B. Allebach, M.D.	T. Grill, M.D.
Name and Location of School	TEXAS Hotel Dieu Hospital, Beaumont			Jefferson Davis Hospital, Houston	UTAH Thomas D. Dee Memorial Hospital, Ogden a				Suit Lake County General Hosp., Sait Lake City a b	VIRGINIA	University of Viginia Hospital, Charlottesville Hospital of St. Vincent de Paul, Norfolk a. Medleal College of Viginia Hospital Division, Richmond b.		WASHINGTON King County Heavity, Society	Providence Hospital, Scattle, Dencouss, Hospital, Spokane, Sarred Heart Hospital, Spokane, St. Luke's Hospital, Spokane a.	St. Joseph's Hospital, Tacoma & b. Tucoma General Hospital, Tacoma	St. Francis Hospital, La Crosse, Madison General Hospital, Madison St. Mary's Hospital, Madison State of Wisconsin General Hospital, Madison	Milwaukee Hospital, Milwaukee	a. Male students are manufactures

a. Male students are admitted,
b. Students from other than affiliated colleges and universities are
also accepted,
1. Students from other than affiliated college must have degree,

^{2.} South Bend Medical Laboratory serves as the pathology department for Epworth Hospital and St. Joseph's Hospital, South Bend.
3. Bender Hygienic Laboratory serves as the pathology department for the following hospitals: Anthony N. Brady Maternity Hospital, Memorial Hospital and St. Peter's Hospital, Albany; Memorial

Hospital of Greene County, Catskill; Hudson City Hospital, Hudson, and Troy Hospital, Troy.

4. College graduates and graduate nurses with two years of college are also admitted.

5. Includes training in x-ray.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - "Medic, Chicago"

Subscription price - - - - Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such rotice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MARCH 28, 1942

# INTERNSHIPS, RESIDENCIES AND FELLOWSHIPS

The annual report of the Council on Medical Education and Hospitals with reference to internships and residencies in specialties appears in this issue of THE JOURNAL. Though the records are based on reports for the calendar year 1941, all hospitals approved by the Council as of March 1, 1942 are included. These total 1,070, of which 438 are approved for internships only, 338 for residencies and 294 for both interns and resident physicians. The 732 hospitals accredited for intern training offer 7,228 internship appointments annually, whereas the 632 residency hospitals provide 2,664 approved residencies, 1,887 assistant residencies and 742 fellowships, as well as 601 general and other services not yet certified by the Council. These hospitals have a significant role in medical education, illustrated by the fact that they are currently engaged in the training of 7,219 interns and 5,756 residents, assistant residents and fellows. This represents the equivalent of two and a half annual graduating classes of all approved medical schools in the United States.

The undergraduate medical curriculum does not offer sufficient training to meet the medical needs of a community. Recent graduates must therefore receive further experience in clinical practice under the guidance of a competent hospital staff. The internship fulfils this purpose and serves to complete the preparation for general practice. It bears an equally important relationship to the graduate field, where it constitutes an essential prerequisite for residency, fellowship and other specialty training that may lead to certification by the American specialty boards. In the broadest sense the internship is part of the fundamental training essential to a career in medicine. The internship provides basic preparation not only for general and special practice but also for administrative medicine, educational pursuits, research and other activities which require a medical background. The preservation of the internship is therefore essential to the maintenance of adequate standards of medical practice. This is fully recognized by the United States Army, the United

States Navy and the Selective Service, which have made provisions whereby interns, medical students and even premedical students who have matriculated in medical schools may secure deferment from active military service until they have completed their undergraduate studies and one year of internship.

According to present indications the number of interns available for hospital service will not be lessened. Indeed, it may be increased because of the accelerated program of medical education adopted by most approved medical schools, which involves the graduation of a class every nine months. The long term internships are now generally being reduced to twelve months in accordance with military needs, but necessity has not been apparent for any further reduction below this point. Hospitals may need to readjust their arrangements for the internship, however, to provide for the appointment of interns at such times as will coincide with the new periods of graduation. The integration of one year internships with the accelerated curriculum of the medical schools presents many difficulties.

Under the present circumstances, hospitals should cooperate to maintain a uniform and equitable distribution of interns in relation to the clinical and educational requirements of the various institutions. Every hospital, therefore, should reexamine its intern program and carefully limit the number of appointments to actual minimum needs.

Though provision has been made for the deferment of medical students and interns, a similar plan has not been developed to provide for the training of young physicians beyond the period of a one year internship. Residencies in specialties will no doubt be greatly curtailed during the present emergency, since the majority of medical graduates will probably be called to military service immediately on completion of the regular intern year. Efforts are being made, however, to maintain the present resident structure at least on a skeleton basis so that the approved hospitals may be able to resume this educational function without delay as soon as conditions again become favorable.

Since the further education of a certain number of physicians is vital to the future welfare of the country, the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association have appointed a committee whose chief purpose is to formulate plans whereby a percentage of interns may be given an opportunity to continue their training in the special fields of medicine.

Efforts are being made by all the agencies concerned to prevent any depreciation in the standards of medical education, hospital service and medical care during the war. The indications are that the needs of the Army, the Navy, public health and the civilian population can be met by scientific planning and complete cooperation without any deterioration in the quality of medical education and medical service.

# HOSPITAL SERVICE IN THE UNITED STATES

The statistics published in this issue of The Journal show that there are available in the registered hospitals of the United States 98,136 more hospital beds than were available in 1941. This increase in bed capacity during the past year has been the equivalent of one additional 269 bed hospital for every day of the year, Sundays and holidays included.

The annual census of the registered hospitals just completed by the Council on Medical Education and Hospitals shows a total capacity of 1,324,381 beds and 66.163 bassinets, as of Dec. 31, 1941. There were 11,596,188 patients admitted to these hospitals, 5,201,650 of whom underwent surgical operation.

The number of births in the reporting hospitals was 1,404,940, an increase of 190,448 over the preceding year.

Moreover, the hospitals of this country are functioning more efficiently and more effectively. The average length of stay in general hospitals has been reduced from fourteen days in 1935 to twelve days in 1941. Based on this reduction of two days in the average length of stay, and estimating conservatively the minimum cost per patient day at \$4, the cost of hospitalization for the 10,646,947 patients admitted to the general hospitals of the country was \$85,175,576 less than it would have been in 1935.

The inclusion of statistics with regard to certain nonmedical personnel not previously published emphasizes the enormous problem involved in rendering efficient hospital service to the public.

The hospitals throughout the country have individually and in cooperation with other agencies been formulating programs to meet such emergencies as may arise in connection with the war.

The data submitted suggest that the hospitals of this country have never been in better position to meet successfully such demands as may be made.

# THE RECORD KEEPING OF EXEMPT NARCOTIC PREPARATIONS

Physicians who dispense attenuated narcotic preparations, which are exempted from the Harrison Narcotic Act by section 6 of that act, need not keep a record of such drugs if dispensed for a legitimate therapeutic purpose to a patient on whom the physician is in personal attendance. In a recent decision, the United States Supreme Court clarified an apparent ambiguity in the Harrison Narcotic Act. That act, as far as the more potent narcotic drugs are concerned, excuses a physician from keeping records when he dispenses narcotic drugs to patients on whom he is in personal attendance. In the case of the less potent prepara-

tions, however, section 6, after describing the so-called exempt preparations, imposes a duty of record keeping on "any manufacturer, producer, compounder, or vendor (including dispensing physicians) of the preparations and remedies" mentioned in the section. The use of the designation "dispensing physicians" has been construed to impose on a physician who dispenses any of the exempt narcotic preparations to a patient the duty of keeping a record of the transaction. Such an intent on the part of the Congress has been difficult to justify in view of the fact that record keeping is not required of physicians in the case of the potent narcotic drugs.

The present case arose in Hawaii. The defendant was a licensed physician who was prosecuted for failure to keep records of paregoric and certain other exempt preparations which he dispensed to patients. A conviction followed, and the case eventually reached the United States Supreme Court. Justice Murphy, speaking for the court, said that Congress by using the words "dispensing physicians" in connection with the proviso relating to the keeping of records of exempt preparations clearly meant to exclude physicians administering to patients whom they personally attend. In the words of the court:

That not all physicians are required to keep records is manifest from the use of the qualifying adjective "dispensing." And, the physician must be one who manufactures, produces, compounds, or vends, or possibly only one who vends if the parenthetical phrase applies only to "vendor," the drugs. These are not appropriate words to describe the function of a physician who administers exempt preparations to patients whom he personally attends. . . .

The legislative history of the second proviso of section 6 supports the view that the words "dispensing physicians" were intended to apply only to physicians acting as dealers in the sale of drugs.

Justice Murphy called attention to the fact that Congress unequivocally exempted physicians from record keeping where in personal attendance on patients in connection with the use of the more potent narcotics and stated that it was difficult to perceive "why a different requirement should obtain when a physician, under similar circumstances, administers preparations containing only a limited amount of narcotics, such as the paregoric, cough syrup, etc., involved in this case."

One unusual feature of this case was that the government, when the case came before the Supreme Court, agreed with the position taken by the physician and consented to a reversal of the judgment of conviction. In a Memorandum for the United States, filed in the Supreme Court, the attorneys for the government frankly admitted that the provision in section 6 relating to record keeping should not apply to a physician who administers exempt narcotics solely to patients upon whom he personally attends. The language of the requirement, it was pointed out in the memorandum, imposes the record keeping requirement upon "any manufactions of the disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting disconting discon

imposes the record keeping requirement upon any manufacturer, producer, compounder, or vendor (including dispensing physicians)." The words "dispensing physicians" in this con-

^{1.} Peter Young, alias Young Lup, v. United States, 62 S. Ct. 510, decided Feb. 2, 1942.

nection may be reasonably interpreted as applying only to physicians dispensing to persons other than patients upon whom they personally attend, e. g., country doctors who may act as druggists, physicians who engage in the manufacture and general distribution of patent medicines. An interpretation of the proviso which limits it to this type of situation makes it harmonize with section 2 (a) where, in dealing with true narcotics, Congress unequivocally stated its intention to exempt physicians from record keeping when in personal attendance upon patients.

Apparently the Bureau of Narcotics knew nothing of the proceeding that had been instituted against the defendant physician until after the judgment of conviction had been entered. Furthermore, the Acting General Counsel of the Treasury Department, in a letter to the United States Solicitor General in connection with this case, under date of Nov. 29, 1941, expressed the position of the Department of the Treasury, under which the Bureau of Narcotics functions, as in general accord with the construction placed by the defendant physician on the record keeping requirement as far as it relates to "dispensing physicians."

### Current Comment

### PHYSICIANS FOR THE AIR FORCE

From the Procurement and Assignment Service for Physicians, Dentists and Veterinarians, as indicated elsewhere in this issue, comes a request for physicians in the air force. The Army wants specifically for this purpose two thousand five hundred physicians, who will be commissioned by July 1; it will need six hundred additional physicians each month for the remainder of the calendar year. This alone is a total of six thousand one hundred physicians. Most of those required are to be under 37 years of age. Among the ones certified as specialists in surgery, ophthalmology and neuropsychiatry, more than a thousand are needed between the ages of 37 and 45. The place of the air force in the winning of the war is already clear to every intelligent person. The need is immediate. If you feel you can qualify, write to the Air Surgeon, Army Air Force, Washington, D. C., giving the information that is specified. Everything possible will be done to facilitate immediate commissioning of the applicant in a rank suitable to the place he will occupy.

### MEDICAL-PHARMACEUTICAL CONFERENCE

By arrangement of the Board of Trustees of the American Medical Association, representatives of the Council on Pharmacy and Chemistry met on March 8 with a similar committee from the American Pharmaceutical Association to arrange a medical-pharmaceutical conference. The representatives for medicine were Drs. Harold N. Cole, Morris Fishbein, Theodore G. Klumpp, Austin E. Smith and Torald Sollmann. The representatives for pharmacy were Dean B. V. Christensen, Mr. Charles H. Evans, Dr. E. F. Kelly and Dean Robert C. Wilson. It had previ-

ously been decided that the conference should be held concurrently with the special meeting of the U. S. Pharmacopeial Convention, which is to take place in Cleveland on April 7. Thus the function of this informal meeting between representatives of medicine and pharmacy was to arrange a program for the open session, which will be held on April 6 at the Statler Hotel. The program evolved follows:

- 2 p. m. DEAN TORALD SOLLMANN presiding.
- 1. Evolution of the Apothecary. Howard Dittrick.
- 2. Trends of Pharmaceutical Practice. E. F. Kelly.
- Objectives of the Program of Pharmaceutical Education. DEAN ROBERT C. WILSON.
  - 6:30 p.m. Dinner. DEAN B. V. CHRISTENSEN presiding.

Address: Status of Medicine and Pharmacy In the War and After. Morris Fishbein.

Discussion of the papers will be opened by speakers prominent in their respective fields as related to medicine and pharmacy. General open discussion is limited to two minutes to each contributor, who may speak but once. Reservations for the dinner may be made with, or tickets procured from, the Committee on Arrangements on the day of the conference. committee consists of Dean Robert C. Wilson, School of Pharmacy, Georgia, Dr. Austin E. Smith, Acting Secretary of the Council on Pharmacy and Chemistry, and the local Cleveland representative, whose name will be posted on the conference room bulletin board. The conference and dinner (business dress) will be held in the Lattice Room. It is hoped that this conference will be attended not only by those who plan to attend the U.S. Pharmacopeial Convention but by all members of the pharmacal and medical professions who are interested in any aspect of the program.

### AMPUTATIONS AND PROSTHESES

The correct site of election for amputation, to assure a serviceable and functional stump, and the mechanics of the prosthesis are among many other subjects considered in a recent publication of the American Medical Association, the "Handbook on Amputations," 1 sponsored by the Council on Physical Therapy and its group of Consultants on Artificial Limbs. Specialists in the surgery of amputation and experienced artificial limb manufacturers cooperated in this work. The psychology of the patient who has lost a leg or an arm is given special consideration. Amputations in diabetes mellitus and peripheral vascular diseases are described along with postoperative care and physical therapy of the stump. An interesting innovation is the use of ice as a substitute for chemical anesthesia. In emergency, cracked melting ice and a tourniquet may be used in the amputation of a leg or an arm without pain to the patient. Amputations and their associated injuries are grim reminders of the aftermath of war. The Council has rendered a service to medicine by compiling this timely volume.

^{1.} Handbook on Amputations, Chicago, American Medical Association, 1942, price 75 cents,

# MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

### WAIVER OF PHYSICAL DEFECTS FOR LIMITED SERVICE OFFICERS

On January 30 the following communication was sent to surgeons in all corps areas and departments except the Philippine Department and to the commanding officers of all general hospitals except Sternberg General Hospital in Manila.

1. In order that the provisions of AG 210.31 (12-19-41) RP-A, Jan. 7, 1942, subject: Waiving of physical defects for limited

- service officers of the supply arms and services may be carried out in a uniform manner, the following policies of this office concerning recommendations for waiver for limited service are announced:
- (a) Considered acceptable for limited service:
- (1) Overweight to 25 per cent above average weight for age and height, and underweight to 15 per cent below ideal weight, provided chest x-ray examination is negative for pulmonary pathologic change and other chronic disease is carefully excluded.
- (2) Vision 20/400 in each eye corrected with glasses in possession of the examinee to 20/20 in one eye and to at least 20/40 in the other, provided no organic disease of either eye exists.
- (3) Blindness, or vision below 20/400, in one eye with vision 20/100 corrected with glasses in possession of the examinee to 20/20 in the other, provided there is no organic disease in the better eye and no history of cataract or other disease in the more defective eye which might be expected to involve the better one, and provided that, in case of ophthalmosteresis, the individual is fitted with a satisfactory prosthesis.
- (4) Complete color blindness.

(5) Hearing 5/20 in each ear for low conver-

sational voice, or complete deafness in one ear with hearing 10/20 or better in the other, provided the defect is not due to active inflammatory disease and is stationary in character.

(6) Chronic otitis media, inactive, with perforation of membrana tympani, provided there is a trustworthy history of freedom from activity for the preceding five years.

- (7) Old fracture of the spine or pelvic bones which has healed without marked deformity, provided there is a trustworthy history of freedom from symptoms during the preceding two years.
- (8) Loss of one hand, forearm, or lower extremity below junction of the middle and lower thirds of the thigh, provided the lost member is replaced with a satisfactory prosthesis.
  - (9) Pes planus, pes cavus or talipes equinus, provided the condition is asymptomatic and does not interfere with normal locomotion.
  - (10) History of osteomyelitis following fracture, provided x-ray examination indicates complete healing and the condition has been asymptomatic for the preceding five years.
  - (11) Joints fixed or limited in motion, provided the condition is the result of injury and is nonsymptomatic.
  - (12) History of excision of torn or detached semilunar cartilage of knee joint, provided there is normal stability of the joint and a period of one year with complete freedom from symptoms has elapsed since the opera-
  - (13) Residuals of anterior poliomyelitis, without marked deformity or loss of function, originating two years or more prior to examination.
  - (14) Varicose veins, moderate, without edema or discoloration of skin.
  - (15) History of gastric or duodenal ulcer, provided there is a trustworthy history of freedom from activity during the preceding five years and provided a gastrointestinal roentgenogram at the time of examination is negative.
  - (16) Incomplete inguinal hernia.

### PROCUREMENT AND ASSIGNMENT SER-VICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

Information from Major Sam F. Seeley, Executive Officer of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians, 601 Pennsylvania Avenue, Washington, D. C., states that a request has just been received by that office from the Army Air Force for two thousand five hundred physicians to be commissioned by July 1 and for six hundred physicians to be commissioned each month thereafter for the period of 1942. The total is six thousand one hundred physicians needed this year to provide adequate medical care for the Air Force. The place of the Air Force in the winning of the war is already apparent to every one.

### QUALIFICATIONS

Eighty per cent of the physicians to be commissioned must be under 37 years of age. The remaining 20 per cent may be between the ages of 37 and 45 years. Those in the older age group must be qualified by certification as specialists preferably in the fields of surgery, ophthalmology and neuropsychiatry.

The letter of application should state the age of the applicant and the school of graduation and should indicate that he believes himself qualified physically and professionally for a commission.

All names are cleared through the Procurement and Assignment Service.

The letter, requesting application forms, should be sent to the Air Surgeon, Army Air Force, Washington, D. C.

- (17) Small asymptomatic congenital umbilical hernia.
- (18) Absence of one kidney, provided its removal has been necessitated by other than tuberculosis or malignancy and the other kidney is normal.
  - (b) Considered unacceptable for any service:
  - (1) History of malignant disease within preceding five years.

- (2) Active tuberculosis of any organ and inactive pulmonary tuberculosis except as described in paragraph 2a.
- (3) Syphilis, except adequately treated syphilis as described in paragraph 2b.
- (4) Old fracture of the skull with bony defect greater than 2 cm. in longest diameter or with history of accompanying mental or neurologic complications.
  - (5) Instability of any of the major joints.
- (6) History of metastatic osteomyelitis with prolonged or recurrent drainage, regardless of duration.
  - (7) Arthritis of the atrophic (rheumatoid) type.
- (8) Any cardiovascular condition which disqualifies for general military service.
- (9) History of gastroenterostomy, gastric resection, intestinal anastomosis or operation for intestinal obstruction.
- (10) History of prostatectomy or transurethral resection of the prostate, or of prostatic hypertrophy of any degree.
- (11) Chronic endocrine disease except mild hypothyroidism or mild Froehlich's syndrome.
  - (12) Diabetes mellitus of any degree or renal glycosuria.
  - (13) History of any psychosis.
- (14) History of severe psychoneurosis at any time, or psychoneurosis of any degree if it has been recurrent or has shown symptoms within the preceding five years.
- 2. The following may be recommended for general military service with waiver:
- (a) Individuals with minimal inactive lesions of primary or reinfection type pulmonary tuberculosis. These lesions may consist of:
- (1) Calcified residues of lesions of the intrathoracic lymph nodes, provided none of these exceed an arbitrary limit of 1.5 cm. in diameter and the total number does not exceed five.
- (2) Calcified lesions of the pulmonary parenchyma, provided the total number does not exceed ten, one of which may equal but not exceed I cm. in diameter, but none of the remainder may exceed 0.5 cm. in diameter.
- (Note.—The lesions described in (1) and (2) should appear sharply circumscribed, homogeneous and dense. Measurements refer to standard 14 by 17 inch direct projection roentgenograms.)
- (3) Small fibrotic parenchymal lesions represented in the roentgenogram as sharply demarcated strandlike or well defined small nodular shadows not exceeding a total area of 5 sq. cm., provided acceptance is deferred until subsequent examination demonstrates that the lesions are stationary and are not likely to be reactivated. The minimum period of time to determine this is six months. It must be recognized that either progression or regression of the lesions indicates activity.
- (b) Individuals with confirmed positive serologic tests for syphilis with no clinical evidence of the disease, with convincing histories of a trustworthy diagnosis of syphilis, or with reliable histories of treatment for the disease on serologic or clinical grounds; provided:
- (1) That a negative spinal fluid since infection and treatment has been reported from a trustworthy source;
- (2) That, in infections estimated to be of less than four years' duration, at least thirty to forty arsenical and forty to sixty insoluble bismuth injections or their equivalent, with a minimum total of seventy-five injections, have been given, with approxi-

mate continuity (no rest periods or lapses) during the first thirty weeks of treatment; and

(3) That, except as further qualified, in infections estimated to be over four years' duration, at least twenty arsenical injections and forty to sixty insoluble bismuth injections or their equivalent, with a minimum total of sixty injections, have been given in alternating courses; rest periods between consecutive courses not exceeding eight weeks being allowable.

In infections of unknown duration it shall be presumed for classification purposes that those of individuals under 26 years of age are of less than four years' duration, and over 26 years, of more than four years' duration.

(Note.—For the determination of treatment, the signed statement of acceptable treatment sources administering it, with total number of doses of each drug and approximate calendar dates of administration and available laboratory and clinical data, shall be required as evidence.)

- (c) Overweight to 20 per cent above average weight for age and height, and underweight to 12.5 per cent below ideal weight, provided a chest roentgenogram is negative for pulmonary pathologic changes and other chronic disease is carefully excluded.
- (d) Insufficient incisor or masticating teeth, provided the mouth is free from extensive infectious processes and the examinee is wearing satisfactory dentures.
- (c) Pilonidal cyst or sinus, provided there is no palpable tumor mass, no evidence of purulent or serous discharge, and no history of previous discharge or inflammation.
- (f) History of healed fracture with bone plates, screws or wires used for fixation of fragments still in situ, provided x-ray examination shows no evidence of osteomyelitis and no rarefaction of bone contiguous to the fixative materials; that such fixative materials are not so located that they will be subjected to pressure from military clothing or equipment, and that one year has elapsed since their application.
- (g) History of operation or of injection treatment for inguinal or small ventral hernia, provided examination three months or more following operation, or following the last injection, shows a satisfactory result.
- (h) History of unilateral renal calculus, provided the condition has been asymptomatic for the preceding three years, urine examination is negative, and roentgenologic examination (flat plate) of both kidneys is negative.
- (i) Absence of the spleen, provided its removal has been necessitated by a crushing injury.
- (j) History of cholecystectomy, provided the condition has been asymptomatic for the preceding two years,
- 3. The action of the reviewing medical authority should indicate on the Report of Physical Examination, W. D., A. G. O. Form No. 63, that cognizance has been taken of any defects which do not meet the standards set forth in AR 40-105, but for which waiver is recommended by a notation as follows:

"Recommend acceptance for general military service with waiver of (here record the defect or defects)," or

"Recommend acceptance for limited service only with waiver of (here record the defect or defects)."

By order of the Surgeon General:

JOHN A. ROGERS, Lieutenant Colonel, Medical Corps, Executive Officer.

# OFFICE OF CIVILIAN DEFENSE WILL AID ESTABLISHMENT OF BLOOD AND PLASMA BANKS

Hospitals in communities which are exposed to war hazards may receive assistance in the establishment of a blood and plasma bank through funds available to the United States Public Health Service. These will be administered by it through the Medical Division of the United States Office of Civilian Defense. In addition to providing whole blood or liquid plasma for the current needs of hospitals, these blood banks as well as others already in operation are to accumulate a reserve supply of plasma for civilian casualties caused by enemy action. Technical and bacteriologic safeguards are to be observed as recommended

by the Subcommittee on Blood Substitutes of the Division of Medical Sciences of the National Research Council. At the request of the Office of Civilian Defense, a technical handbook on blood and plasma banks has been prepared by this committee, which will be distributed by the Office of Civilian Defense to hospitals.

Following the advice of the committee of the National Research Council, financial and technical assistance will be provided only to three hundred hospitals of two hundred or more beds approved by the American College of Surgeons and the Hospital Register of the American Medical Association. These hospitals will agree to maintain required technical standards and to accumulate a surplus of liquid or frozen plasma amounting to one unit per bed within three months. Grants will be made only for the purchase of essential equipment if obtainable locally and for sufficient technical assistance to initiate the project. Hospitals will thereafter be expected to continue to maintain the blood and plasma bank to meet their daily needs as well as the plasma reserve for civilian casualties.

Technical guidance has also been made available through the appointment of Dr. John B. Alsever of Syracuse, N. Y., by the Surgeon General of the U. S. Public Health Service, and his assignment to the medical division of the Office of Civilian Defense as technical director of its blood and plasma service. Dr. Alsever will be assisted by regional technical consultants

in various parts of the country, whose consulting services will be made available to hospitals in their area.

As a further safeguard for the civilian population, the United States Public Health Service is providing for the production of 50,000 units of dried plasma or human albumin in laboratories approved for the manufacture of biologic products by the National Institute of Health. The American Red Cross has agreed to collect the blood for this purpose without interference with its blood collecting services for the armed forces. This second reserve of dried plasma will be distributed to Office of Civilian Defense depots located in various parts of the country. It will be made available by the medical division of the Office of Civilian Defense to stricken communities for their casualties whenever their own local stores of liquid or frozen plasma are in danger of being depleted.

# ORGANIZATION SECTION

### OFFICIAL NOTES

# COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Report of a Meeting of the Council on Medical Education and Hospitals, held in Chicago, Feb. 15, 1942

RESOLUTION ON THE DEATH OF DR. W. D. CUTTER

The members of the Council, in expressing their deep regret in the loss of Dr. William D. Cutter, Secretary of the Council on Medical Education and Hospitals from Dec. 1, 1931 until his death on Jan. 22, 1942, passed the following resolution by unanimous action:

In the demise of William D. Cutter, M D, the Council on Medical Education and Hospitals lost a valuable secretary and organized medicine a true friend.

Dr Cutter's services to scientific teaching, his life-time devotion to medical education, his unwavering faith in the destiny of American medicine and his career as a medical educator made a splendid contribution to the work of the Council.

His character and ideals, happily combined with high ethical values, will long be remembered and cherished

The members of the Council desire to record their appreciation and gratitude for his splendid services and to express their great personal loss in his death.

The Council sponsored a meeting in the Assembly Hall of the Association headquarters on Monday evening, February 16, to honor the memory of Dr. Cutter. The speakers were Dr. Ray Lyman Wilbur, Stanford University, Calif., whose address was entitled "Cutter, the Medical Administrator"; Dr. Charles Gordon Heyd, New York, who spoke on "Cutter, the Medical Educator," and Alphonse M. Schwitalla, S.J., St. Louis, who spoke on "Cutter, the Man." Dr. Wilbur, who presided, read letters of tribute sent from all parts of the country.

### APPOINTMENT OF DR. WEISKOTTEN

The Council voted to recommend to the Board of Trustees of the American Medical Association that Dr. Herman G. Weiskotten, a member of the Council on Medical Education and Hospitals and dean of Syracuse University College of Medicine, be appointed Secretary of the Council for at least a period of one year. The Council agreed to propose to the Trustees that Dr. Weiskotten spend three quarters of his time acting as Secretary of the Council and the remainder in the service of his medical school.

The Board of Trustees, meeting on Wednesday, February 18, agreed to this plan.

SPEEDING THE PRODUCTION OF PHYSICIANS TO MEET THE WAR NEFDS

The resolution adopted by the Council on this subject was published in The Journal, February 28, page 751.

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE
The resolution on this subject was published in The Journal,
February 28, page 751.

UNIVERSITY OF TEXAS MEDICAL BRANCH

It was agreed to accept the invitation to visit the University of Texas Medical Branch as soon as practicable.

ECLECTIC MEDICAL COLLEGE OF CINCINNATI

The Council wishes to report the complete dissolution of the Eclectic Medical College by the Secretary of State of Ohio and the removal of such inhibitions which it has made concerning the recent graduates of this medical college.

REVISION OF ESSENTIALS OF AN APPROVED INTERNSHIP

A resolution was adopted that the revision of the Essentials of an Approved Internship by a subcommittee of the Council be approved and presented to the House of Delegates of the American Medical Association at its next session for ratification.

### INSPECTION OF HEALTH RESORTS

At the suggestion of the Board of Trustees of the American Medical Association, Dr. W. W. Bauer, representing the Association's Committee on American Health Resorts, submitted a memorandum requesting the Council on Medical Education and Hospitals to cause its field inspectors to make inspections of health resorts. The Council agreed to sample some of these institutions by visitation and report at the next session of the House of Delegates if such a program can be adopted by the Council. It was the sentiment of the Council that, if it is to take on new duties in this connection, such inspections shall be in consonance with the usual procedure of the Council.

### SCARCITY OF INTERNS

With regard to the problem presented by the scarcity of interns and residents, it was suggested that the staff of the Council continue to advise hospitals to conserve the doctor's time for the purely professional clinical work in the hospital and have technical help perform nonprofessional services.

HOSPITAL WORK OF THE COUNCIL

A summary of the work of the Hospital Division of the Council for the year 1941 was presented.

REVISION OF MANUAL OF ESSENTIALS OF GOOD HOSPITAL NURSING SERVICE

The Council participated in a revision of the Manual of the Essentials of Good Hospital Nursing Service, serving with other organizations as a joint committee. The manual under discussion had originally been prepared by the American Hospital Association and the National League of Nursing Education Other organizations having members on the Joint Committee,

in addition to the Council on Medical Education and Hospitals and the two agencies named, were the American College of Surgeons and the American Nurses' Association. The revision of the manual has been completed.

### PREPARATION OF NURSES FOR NATIONAL DEFENSE

The Council was represented at a conference in New York on January 26 and 27, called by the American Council on Education at the request of the National League of Nursing Education and the Association of Collegiate Schools of Nursing. The purpose of the conference was to consider what colleges and universities can do to assist in the preparation of nurses, especially for national defense. Recommendations were formulated regarding preclinical programs, guidance policies and materials, and relative to basic professional programs.

### CONTINUATION COURSES

It was announced that the next quarterly publication of opportunities for continuation courses for practicing physicians is scheduled for publication in The Journal sometime in April.

### CERTIFYING INTERN SERVICES

A resolution was adopted that the Council continue its present policy of not in any way certifying intern services in institutions which it has no possibility of inspecting.

### INSURING CONTINUOUS SUPPLY OF MEDICAL SPECIALISTS

A joint meeting of the Council on Medical Education and Hospitals and the Advisory Board for Medical Specialties was held on February 15. During this meeting the necessity for insuring a continuous supply of adequately trained medical specialists for the Army, Navy, other government services and the civilian needs was clearly recognized, particularly in those fields in which there is a shortage of personnel and a lack of sufficient opportunities for training at the present time. It was felt that a reasonable number of qualified recent graduates should be selected and permitted to continue advanced training under proper auspices. For this purpose a joint committee of the two organizations was appointed consisting of Dr. Robin C. Buerki, Philadelphia; Dr. B. R. Kirklin, Rochester, Minn.; Dr. C. Guy Lane, Boston, representing the Advisory Board for Medical Specialties, and Dr. Reginald Fitz, Boston, Dr. Charles Gordon Heyd, New York, and Dr. H. G. Weiskotten, Chicago, representing the Council on Medical Education and Hospitals.

### INVITATION TO INSPECT MEDICAL SCHOOL IN HAITI

Dr. Camille Lhérisson, professor in the Faculté de médecine, Port-au-Prince, Haiti, appeared before the Council and invited the American Medical Association to inspect the medical school in Haiti and offered to the medical profession in the United States opportunities for study and research in tropical diseases with suitable accommodations and facilities for work. It was a pleasure to receive Dr. Lhérisson, and his visit contributed much to the cultural relationships of the two republics.

# CONFLRENCE WITH REPRESENTATIVES OF ASSOCIATION OF AMERICAN MEDICAL COLLEGES

A conference was held on February 18 with members of the Executive Council of the Association of American Medical Colleges and the Board of Trustees of the American Medical Association at which problems of mutual interest were discussed A joint committee was appointed to decide on matters of policy and to make recommendations to the Council and the Association of American Medical Colleges. The committee consists of Dr. A. C. Bachmeyer, Chicago; Dr. Fred C. Zapffe, Chicago, and Dr. E. M MacEwen, Iowa City, representing the Association of American Medical Colleges, and Dr. Reginald Fitz, Boston; Dr. Charles Gordon Heyd, New York, and Dr. Herman G Weiskotten, Chicago, representing the Council on Medical Education and Hospitals

# HOSPITALS APPROVED FOR INTERN TRAINING, RESIDENCIES AND FELLOWSHIPS AND TECHNICAL SCHOOLS APPROVED

The Council on Medical Education and Hospitals at this meeting took action as follows regarding hospitals for intern training and for residencies and fellowships, as well as schools for the training of Clinical Laboratory and Physical Therapy Technicians:

### Hospitals Approved for Intern Training

St. Joseph's Hospital, San Francisco.
Mercy Hospital, Council Bluffs, Iona.
Yonkers General Hospital, Yonkers, N. Y.
Cleveland Clinic Foundation Hospital, Cleveland.
Hillerest Memorial Hospital, Tulsa, Okla.

### Approved Residencies and Fellowships

### Anesthesiology

University of California Hospitals, San Francisco Hospital of the University of Pennsylvania, Philadelphia.

### Dermatology and Syphilology

Stanford University Hospitals, San Francisco Charity Hospital, New Orleans Buffalo General Hospital, Buffalo.

### Mixed

Bristol Hospital, Bristol, Conn. Tewksbury State Hospital and Infirmary, Tewksbury, Mass Alexian Brothers Hospital, St. Louis. Sheltering Arms Hospital, Richmond, Va.

### Neurology

George Washington University Hospital, Washington, D. C.

### Psychiatry

Mount Zion Hospital, San Francisco
Norwich State Hospital, Norwich, Conn.
Chicago State Hospital, Chicago.
St. Luke's Hospital, Chicago.
Manteno State Hospital, Manteno, Ili.
Peoria State Hospital, Peoria, Ili.
Kalamazoo, State Hospital, Kalamazoo, Mich.
Kansas City General Hospital, No. 1, Kansas City, Mo
New Jersey State Hospital, Trenton, N. J.
Pilgrim State Hospital, Brentwood, N. Y.
Harlem Valley State Hospital, Wingdale, N. Y.
Massillon State Hospital, Massillon, Ohio.

### Obstetric.

St. Joseph's Hospital, Chicago City Hospital, Akron, Ohio,

### Obstetrics and Gynecology

St. Francis Hospital, Peoria, Ill.

### Ophthalmology and Otolaryngology

St Luke's Hospital, Chicago.

### Otolary ngology

University of Kansas Hospitals, Kansas City, Kan. Jefferson Davis Hospital, Houston, Texas.

### Pediatrics

Trimity Hospital, Minot, N. D.

### Radiology

Newark Beth Israel Hospital, Newark, N. J. Good Samaritan Hospital, Portland, Ore. Jewish Hospital, Philadelphia.

### Surgery

St. Francis Hospital, Peoria, Ill.
St. Mary's Hospital, Detroit.
St. Luke's Hospital, Kansas City, Mo
Peoples Hospital, Akron, Ohio
Fairview Park Hospital, Cleveland.
Sacred Heart Hospital, Allentown, Pa.
Hermann Hospital, Houston, Texas.
Jefferson Davis Hospital, Houston, Texas.

### Schools for Clinical Laboratory Technicians Approved

St Joseph's Hospital, Phoenix, Ariz.
George Washington University and Hospital, Washington, D. C.
Providence Hospital, Washington, D. C.
St. Bernard's Hospital, Chicago
Norton Memorial Infirmary, Louisville, Ky.
Charity Hospital, New Orleans.
Shreveport Chvitic Hospital, Shreveport, La.
Burge Hospital, Springfield, Mo
St Joseph's Hospital, Ending, Pa.
St. Joseph's Hospital, Reading, Pa.
St. Joseph's Hospital, Memphis, Tenn.
Jefferson Davis Hospital, Houston, Texas.

### School for Physical Therapy Technicians Approved

University of Minnesota, Minneapolis.

H. G. Weiskotten, M.D., Secretary.

### Medical News

(Physicians will confer a favor by sending for THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVI-TIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ILLINOIS

Dental Correction Program Inaugurated. The state department of health has announced a program in defense areas to correct dental defects on young children whose parents cannot afford to pay for the work. The program has the cooperation of the Illinois State Dental Society and the U. S. Children's Bureau. Educational programs will be carried out and as far as resources will permit, costs of dental care for "dentally indigent children" will be made from state funds, local funds or both.

### Chicago

All Expense Tour to Federation Meeting .- Dr. Arno B. Luckhardt of the University of Chicago announces an all expense tour for Chicago physicians to the annual meeting of the Federation of American Societies for Experimental Biology in Boston, March 31-April 4. Additional information may be obtained from Dr. Luckhardt by calling the University of Chicago, Midway 0800, local 320. An announcement concerning the meeting appears in this issue of The Journal under General News, page 1153.

Capps Prize Awarded. - Dr. Arnold Lazarow has been given the Joseph A. Capps Prize in Medical Research for 1941 for his study on "Particulate Glycogen: A Submicroscopic Component of the Guinea Pig Liver Cell; Its Significance in Glycogen Storage and the Regulation of Blood Sugar," according to an announcement from the Institute of Medicine. Dr. Lazarow graduated at the University of Chicago School of Medicine in 1941. The Capps Prize is given to a young physician for the most meritorious investigation in medicine or in the specialties of medicine.

### INDIANA

Tristate Meeting.-The Northern Tri-State Medical Association will hold its sixty-ninth annual meeting at Fort Wayne on April 7 with sessions in the Chamber of Commerce Building. The Allen County Medical Society will act as host, and headquarters will be the Hotel Keenan. The following will participate:

Dr. Claire L. Straith, Detroit, Treatment of Facial Injuries and Deformities. Dr. Irvine H. Page, Indianapolis, Nature and Experimental Treatment

Dr. Irvine H. Page, Indianapolis, Nature and Experimental Treatment of Hypertension.
Dr. Paul Starr, Chicago, Clinical Studies of the Pituitary Factor in Patients with Thyroid Disease.
Dr. Nicholson J. Eastman, Baltimore, Breech Presentation and Problems Associated Therewith.
Dr. Paul B. Magnuson, Chicago, Surgical Treatment of Arthritis.
Dr. Fredrick F. Yonkman, Detroit, Sulfa Derivatives.
Dr. Jonathan Forman, Columbus, Ohio, Importance of Allergy in General Practice.
Dr. Beveridge H. Moore, Chicago, the A B C of Orthopedies.
Dr. Arthur H. Parmelee, Chicago, Bone Growth in Early Infancy.
Dr. William S. Keller, Glendale, Ohio, Civilian Defense and the Doctor. Doctor.

### IOWA

Graduate Lectures .- The Polk County Medical Society, Des Moines, sponsored two graduate lectures, March 18, at the Yonkers Tea Room, Des Moines. Dr. Elexious T. Bell, Minneapolis, discussed "Kidney Disease" and Dr. Charles Anderson Aldrich, Winnetka, Ill., "Treatment of Chronic Number of March 1981. Nephritis and Nephrosis."

Annual Pediatric Session.—The Iowa State Pediatric Society will hold its annual meeting at the Hotel Fort Des Moines on April 14. The following program will be presented:

Dr. Mark L. Floyd, Iowa City, Neuronitis. Dr. Robert O. Hughes, Ottumwa, Medical Treatment of Pyloric Spasm and Pyloric Stenosis.

and Pyloric Stenosis.

Dr. Charlotte Fisk, Des Moines, Fluid Therapy in Pediatrics.

Dr. Robert H. McBride, Sioux City, Scurvy.

Dr. Martin D. Ott, Davenport, Pediatrics, Past and Present.

Dr. Philip C. Jeans, Iowa City, Metabolic Changes in Adolescence.

Dr. James E. Dyson, Des Moines, Kenny Treatment of Acute Polio-

Dr. Dennis H. Kelly, Des Moines, Extensions from the Primary Complex in Tuberculosis. Dr. John A. Toomey, Cleveland, Newer Prophylactic Measures.

In the evening Dr. Toomey will address the banquet session

on "Pathogenesis and Treatment of Poliomyelitis."

### MARYLAND

Professor Hegner Dies.—Robert W. Hegner, Ph.D., since 1922 professor of protozoology of the Johns Hopkins University School of Hygiene and Public Health, Baltimore, died, March 11, aged 62. Dr. Hegner was born in Decorah, Iowa, in 1880. He received his Ph.D. degree at the University of Wisconsin, Madison, in 1908. For a time he served as an assistant zoologist at the University of Chicago, professor of biology at the Wisconsin State Normal School, River Falls, Wis., and assis-Wisconsin State Normal School, River Falls, Wis., and assistant zoologist at the University of Wisconsin. He was on the staff of the University of Michigan, Ann Arbor, Mich., from 1908 to 1918, when he joined Johns Hopkins as an associate. He was associate professor in charge of the department of medical zoology there from 1920 to 1922, when he became professor of protozoology. In 1926 Dr. Hegner once served as exchange professor with the London School of Hygiene and Tropical Medicine and in 1920 visiting professor at the school Tropical Medicine and in 1929 visiting professor at the school of hygiene and public health, University of Philippines. He was a member of many scientific societies, including the American Society of Tropical Medicine and the Academy of Tropical Medicine, serving as president of the American Society of Parasitology in 1936.

### MASSACHUSETTS

The Howe Lecture of Ophthalmology.-Marion Hines, Ph.D., associate professor of anatomy, Johns Hopkins University School of Medicine, Baltimore, gave the Howe Lecture of Ophthalmology at Harvard Medical School, Boston, on March 17. His subject was "Recent Contribution to the Localization of Vision Within the Central Nervous System." The lecture is given under the auspices of the Howe Laboratory of Ophthalmology at Harvard.

Forty Years' Service with Health Board. - Dr. Frank L. Morse, Somerville, has retired after forty years' service with the Somerville Board of Health. According to the New England Journal of Medicine Dr. Morse was medical and sanitary inspector of the Massachusetts Board of Health from 1898 to 1905 and a district health officer from 1909 to 1915. From 1901 until his retirement from the Somerville board he had been in charge of the bacteriologic laboratory, the contagious disease hospital, contagious disease control and all other medical work of the board. He was discharged from active service in the U.S. Army in 1919 with the rank of lieutenant colonel and was retired from the Officers Reserve Corps in 1935 with the rank of colonel. He graduated at Harvard Medical School in 1894.

### MICHIGAN

Society News. - Dr. Austin E. Smith, Acting Director, Council on Pharmacy and Chemistry, American Medical Association, Chicago, addressed the medical section meeting of the Wayne County Medical Society with the Detroit Retail Druggists Association in Detroit, March 9, on "The Role of the Physician, Pharmacist and Government in the Control of Drugs."

### MINNESOTA

Abortionist Sentenced .- Millie Meyer, Duluth, was sentenced on February 11 to a term of not to exceed four years at hard labor in the Women's Reformatory at Shakopee, following a conviction by a jury of the crime of abortion. Mrs. Meyer was arrested on January 15, the preliminary hearing was held on January 22, and the trial started on February 3.

Course in Roentgenology of the Head and Neck .- The Center for Continuation Study of the University of Minnesota. Minneapolis, will conduct a course on roentgenology of the head and neck, March 30-April 1. Members of the medical school faculty are assisting in the course. Registrants are invited to attend the meeting of the Minnesota Radiological Society at the Mayo Clinic, Rochester, March 28, for a dinner and evening program. A special course in roentgenology of the teeth will be given on April 2 if a sufficient number of roentgenologists register.

### NEBRASKA

New Health Units .- The Nebraska State Department of Health has established three new health units in defense areas; Cass-Sarpy County, Douglas County, including the city of Omaha, and Dodge-Saunders County. These units are established lished in connection with either army or defense production, and the personnel consists of medical officer, engineer, sanitarian and six nurses.

Society News .- The Omaha-Douglas County Medical Society will be addressed, April 14, among others, by Dr. James Dewey Bisgard, Omaha, on "Sarcoma of the Duodenum." The society devoted its February 24 meeting to a symposium on heart disease at which the speakers were Drs. Frederick W. Niehaus, Raymond L. Traynor, Augustus David Cloyd, Howard B. Hunt and Michael William Barry.

### NEW YORK

Lecturer on Rheumatic Fever.-The Medical Society of the State of New York and the state department of health have arranged a special lecture on rheumatic fever for the Steuben County Medical Society to be given at Corning, April 9. Dr. Norman S. Moore, Ithaca, will be the speaker.

Milk Borne Outbreak of Septic Sore Throat .- Health News reports an outbreak of septic sore throat in Suffolk County, traced to a milk handler who was suffering from sore throat. All the persons affected in the outbreak were patrons of one milk producer and dealer who sold the greater part of his supply as raw milk. Only those who drank the raw milk became ill. The milk handler was sick nine days before the beginning of the outbreak. He carried on his duties, cleaning the cattle for milking, transporting cans of milk, washing bottles and assisting in bottling the milk. One of the cows sustained an udder injury, and this milk handler took care of the cow's injury. Strains of hemolytic streptococci belonging to Lancehave arranged a special lecture on rheumatic fever for the Steuben County Medical Society to be given at Corning, April 9. Dr. Norman S. Moore, Ithaca, will be the speaker.

### New York City

Graduate Course.-Columbia University announces a short course in practical oral pathology, April 1-29. The course will consist of lectures, discussions and demonstrations and is open to qualified graduates in dentistry or medicine.

Ship's Doctor Missing .- Dr. Ralph M. Whitehead, for more than thirty-five years ship's doctor on various boats, has been reported missing following the torpedoing of a ship in the Caribbean, March 6, according to the Chicago Tribune. Dr. Whitehead graduated at the University of Illinois College of Medicine, Chicago, in 1890. He is 75 years of age.

Dr. Rappleye Resigns as Commissioner of Hospitals.
-Dr. Willard C. Rappleye, since Oct. 1, 1940 commissioner of hospitals, has resigned to return to his activities as dean of Columbia University College of Physicians and Surgeons. At the time of his appointment, Dr. Rappleye was granted a fifteen months leave of absence from his deanship. He succceded Dr. Sigismund S. Goldwater, who resigned to devote his full time as head of Associated Hospital Service.

Psychology Laboratory Observes Fiftieth Anniversary. -The fiftieth anniversary of the founding of the laboratory of psychology of Columbia University was celebrated at a dinner meeting on February 12. Dr. McKeen Cattell, since 1936 associate professor of pharmacology in charge of the department, Cornell University Medical College, was the guest. Dr. Cattell established the laboratory in 1891. Albert T. Poffenberger Jr., Ph.D., executive officer of the department of psychology at Columbia, presided at the dinner, and addresses were made by Nicholas Murray Butler, LL.D., president of the university; Edward L. Thorndike, LL.D., director, division of psychology, Institute of Educational Research, Teachers College at Columbia; Robert S. Woodworth, Ph.D., professor of psychology at the school, and Dr. Cattell.

Visiting Professorships Established.—The Long Island College of Medicine, Brooklyn, has established a series of visiting professorships under a grant from the Commonwealth Fund of \$4,500 a year for three years. On the concept that all departmental heads have phases of their teaching program they would like to strengthen, the college is inviting scholars from other institutions for short periods to make specific contributions to the curriculum, according to an announcement. Dr. Thomas Addis, professor of medicine, Stanford University School of Medicine, San Francisco, is the first visitor under the new plan and started his six weeks affiliation with the school on March 16 as the guest of Dr. Tasker Howard, professor of medicine. Dr. Wilson G. Smillie and members of his staff at Cornell University Medical College have accepted the invitation of Dr. Wade W. Oliver, professor of bacteriology, to give the spring trimester course in parasitology and tropical medicine to the second and third year classes.

Hospital Unit Dedicated .- Ceremonies on January 4 marked the dedication of a new nine story building constructed as the the dedication of a new nine story building constructed as the major part of a \$1,300,000 modernization program at St. Vincent's Hospital, New York. The new unit adds one hundred and twenty-four beds to the existing four hundred and seventy beds of the hospital. The fourth, fifth and sixth stories are set aside for the maternity department. The ninth story is set aside for the materially department. divided into two parts, the front containing two operating rooms with adjoining sterilizing, doctors' wash-up and anesthetizing rooms. The rear portion of the ninth story contains a complete delivery department, having three delivery rooms together with labor rooms and the necessary utilities. Above the ninth story is provided a roof pavilion for outdoor treatment together with a large solarium. St. Vincent's Hospital was established ninety-two years ago, expanding from thirty beds in 1849 to its present approximate capacity of six hundred beds. At a dinner on January 12 a campaign was launched to raise \$750,000 to cover part of the cost of the modernization program at the hospital.

### OKLAHOMA

Personal.-Dr. Lewis L. Reese has resigned as medical director of the State University and Crippled Children's hospitals, Oklahoma City, and has been succeeded by Dr. George N. Barry, Oklahoma City, as acting medical director.—The University of Oklahoma School of Medicine closed for a time on December 4 as a tribute to Dr. Richard C. Lowry, professor of clinical obstetrics, who died suddenly, December 2.

### PENNSYLVANIA

Dr. Daugherty Wins Seibert Award.—The Harrisburg Academy of Medicine recently presented the Seibert Memorial Award for 1941 to Dr. John Arthur Daugherty, Harrisburg, now president of the Dauphin County Medical Society. The award is granted every two years to the member of the Harrisburg Academy of Medicine, under 45 years of age, who, in the opinion of the committee, has done most to advance the practice of medicine in the community. Dr. Daugherty was for five years secretary of the Dauphin County Medical Society and business manager of the Academician. In 1936 he was largely instrumental in organizing the Physicians' and Dentists' Bureau for the benefit of the professions, which led to the forming of the Capital Hospital Service, of which he later served as secretary. The award of \$500 for graduate study was established as a memorial to the late Dr. William Henry Capitant Stretches. Seibert, Steelton.

### Philadelphia

Scarlet Fever Outbreak .- Forty-three new cases of scarlet fever were reported in Philadelphia on March 6, bringing the total this year to 1,358. The city council's finance committee voted \$14,400 to be used in preventing a spread of the epidemic. Of the 636 patients in the city's contagious disease hospital, 554 were scarlet fever patients at the time of this report.

Meeting on Nutrition.-The Philadelphia County Medical Meeting on Nutrition.—The Philadelphia County Medical Society devoted its meeting, March 11, to a round table on nutrition with Dr. David T. Smith, professor of bacteriology and associate professor of medicine, Duke University School of Medicine, Durham, N. C., as guest speaker discussing "Recent Advances in the Vitamin Field of Practical Importance in Therapy." Members of the panel were Drs. Katharine O'Shea Elsom, Herbert T. Kelly, Waldo E. Nelson, George Harlan Wells, John H. Willard and Michael G. Wohl.

Meeting on Nutrition and Defense. - The Woman's Auxiliary to the Philadelphia County Medical Society announces Auxiliary to the Philauenphia County Alexandra auditorium, the twelfth annual health institute in the society's auditorium, and the Mark Francis F. Borzell presiding. "Nutrition April 14, with Mrs. Francis F. Borzell presiding. "I and Defense" will be the theme. The speakers will be:

Defense will be the theme. The speakers will be:

Dr. Katharine O. Elsom, Vitamins in Relation to National Defense.

Dr. John H. Gunter, Nutrition and the Teeth.

Dr. Earl D. Bond, Nutrition and the Emotions.

Mrs. Charles C. Crouse, Greensburg, Pa., The Responsibility of the Doctor's Wife in This Crisis.

Dr. Gilson Colby Engel, Cancer As It Concerns You.

Dr. Arthur Parker Histonia International Colonel, U. S. Army, Nutrition, bur Job.

Dr. Lewis Pa., Organized Efforts in Medical Defense.

### RHODE ISLAND

Personal. - Dr. Peter Pinco Chase, Providence, has been appointed editor of the Rhode Island Medical Journal, succeedappointed enter of the rotate Island Mental Journal, succeeding Dr. Albert H. Miller, Providence, who has retired after more than five years in the position.—The Men's Club of Temple Emanu-El recently presented Dr. Herman C. Pitts with its yearly award "to a citizen of Providence for outstanding achievement in the field of civic improvement, human betterment and advancement of American ideals."

Society News. - The Providence Medical Association devoted its meeting, March 2, to a symposium on hypertension with the following speakers: Drs. Morgan Cutts, Robert R. Baldridge and Chitton B. Leech. All are of Providence. The association was addressed on February 2 in joint session with the Rhode Island Medical Society by Drs. Allen O. Whipple and Louis Island Medical Society by Drs. Allen O. wimppie and Louis Bauman, New York, who discussed therapy of pancreatic disease and Dr. Walter G. Phippen, Salem, Mass., "The Procurement and Assignment Service for Physicians."

New Pathologic Society.—Announcement is made of the organization of the Rhode Island Society of Pathologists at a meeting in Howard. Officers include Drs. Benjamin Earl Clarke, Providence, president, and Louis Goodman, Howard, secretary-treasurer. Active membership is open to graduates of recognized medical schools who have specialized in the practice of pathology or who occupy positions as pathologists in approved hospitals. The group aims to provide periodic conferences for mutual assistance, to maintain and improve the services of the pathologist to the physician and patient, and to stimulate productive work in the field of pathology.

### VIRGINIA

Young Physician Prisoner of War in Japan.-Lieut. Richard Bland Williams Jr., Portsmouth, on duty at the Naval Hospital in Guam when the island was taken by the Japanese, is a prisoner in Japan, according to a message published in the Norfolk Pilot, February 18. Dr. Williams graduated at the University of Virginia Department of Medicine, Charlottesville, in 1939 and later served at the Norfolk Naval Hospital in Portsmouth. He is 27 years of age.

Change in Graduate Instruction.—At a specially called meeting to decide on the year's program, the department of clinical and medical education of the Medical Society of Virginia agreed that a change of emphasis in postgraduate instruction was necessary. The usual clinics at the medical schools, which have been a part of the program in the past, will not be included because of war conditions and the increased demands on practicing physicians and the medical school staffs. The department will, however, continue to furnish speakers and assist financially in sponsoring local programs, especially in the field of industrial medicine and military medicine,

An Experiment in Nutrition.—Two sections of Richmond have been selected as test areas for an intensive campaign intended ultimately to improve the nutritional standards of the American people. According to the state medical journal, Virginia was selected for this experiment because of the state's historical background, its highly cooperative volunteer service for defense and the ready availability of personnel for the experiment. Cooperating with the city and state health departments are the Medical College of Virginia, Richmond, Virginia Defense Council, Federation of Woman's Clubs, Richmond Home Economics Association, Richmond Academy of Medicine, Federation of Parent Teachers Associations, Richmond Dental Society, the junior league, the citizens' league defense program of the Office of Civilian Defense, the Dairy Council, Virginia Tuberculosis Association, Colored Recreation Association, WPA division of community service programs, Richmond Public Library, Richmond Social Service Bureau, Richmond Dietetic Association and the Farm Security Administration. Organization and instruction programs will be carried out, and surveys will be made to determine changes in consumers' buying habits One study already completed has shown that only about 10 per cent of the children in an elementary school in Richmond are selecting or bringing from homes balanced lunches. The program is under the direction of the Office of Defense Health and Welfare Services.

### WISCONSIN

Annual Spring Clinics. - The Wisconsin State Medical Society will hold its annual spring clinics in Chippewa Falls on April 27, in Wausau on April 28 and in Fond du Lac on April 29. Participating will be:

Walter Zett, Ph D. Milwaukee, Anatomy of the Female Pelvis and Anatomy of Stomach and Gallbladder.
Dr. Howard H Cummings, Ann Arbor, Mich., Postpartum Care-Repair of Lacerations and Episiotomy Wounds; Complications of

Menopause Dr. Walter L Palmer, Chicago, Functional Colitis; Peptic Ulcer, Sur-

Dr. Walter L. Paimer, Cincago, Functional Colitis; Peptic Ulcer, Surgical Management.
Dr. William C. Keettel Jr., Madison, Obstetrical Manikin Demonstration.
Dr. William S. Middleton, Madison, Carcinoma of the Lung.
Dr. Stephen E. Gavin, Fond du Lac, The Medical Profession and the War.

A series of round table dinners will conclude each program.

### GENERAL.

Citations for Distinguished Service.—During the annual dinner of the Birth Control Federation of America, Inc., New York, January 28, citations for distinguished service in the advancement of human welfare were awarded to Pearl S. Buck, New York, author; Paul U. Kellogg, New York, editor, Survey Graphic; Julian S. Huxley, author; Dr. Carl V. Reynolds, Raleigh, state health officer of North Carolina, and Dr. George M. Cooper, Raleigh, assistant state health officer of North

Special Society Election.—Selman A. Waksman, Ph.D. New Brunswick, N. J., was elected president of the Society of American Bacteriologists at its annual meeting in Baltimore recently. Rebecca Lancefield, Ph.D., of the Rockefeller Institute for Medical Research, New York, was named vice president, and William B. Sarles, Ph.D., Madison, Wis, secretary-treasurer. Ira L. Baldwin, Ph.D., Madison, who had been corrected for a warpen and partial contents. been secretary for a number of years, was reelected secretary but was compelled to resign on account of ill health. The society adopted a resolution honoring Dr. Baldwin for his service.

Industrial Physicians and Surgeons.—The twenty-seventh annual meeting of the American Association of Industrial Physicians and Surgeons and the third annual meeting of the American Industrial Hygiene Association will be held at the Hotel Gibson, April 13-17. Included among the speakers will be:

Dr. Harold C Habein, Rochester, Minn, The Health of the Executive Dr. James Barrett Brown, St. Louis, Advances in Skin Grating Eugene W. Scott, Ph.D., Cincinnati, Metabolism of Nitroparaffins Dr. Willard F. Machle and Edward J. Largent, A B., Cincinnati, Absorption, Retention and Excretion of Fluorides at Normal and Abnormal Levels of Intake, Dr. Francis F. Heyroth and Jacob Cholak, Ch E, Cincinnati, Toxicity of Aluminum.

Frederick H. Goldman, Ph D, Washington, D. C, Analysis of Atmospheric Samples of Explosive Chemicals

L. P. Pekrul, Robert C. Lewis, Ph D, and Donald E Cummings, B S. Denver, A Reliable Procedure for the Evaluation of Exposure to Lead by Spot Urine Sampling.

One session on Wednesday will be devoted to a symposium

One session on Wednesday will be devoted to a symposium on lead poisoning. Another symposium will cover "Medical Service for the Small Plant." The Knudsen Award will be presented at the annual dinner, Wednesday evening.

Regional Meeting on Physical Therapy.—The Eastern Section of the American Congress of Physical Therapy will hold its spring session in Philadelphia, April 11, in conjunction with the Connecticut Physical Therapy Society, the New Jersey Society of Physical Therapy Physicians, the New York Physical Therapy Society and the Pennsylvania Academy of Physical Medicine. Included among the speakers will be:

Dr. Harold Lefkoe, Philadelphia, The Office Use of the Paraffin Bath Dr. Richard Kovacs, New York, Painful Shoulders Dr. Stella S. Bradford, Montclair, N. J., Posture and Its Relation to Health and Disease.

Health and Disease.

Dr Charles R. Brooke, New York, Physical Measures in the Treatment of Veterans.

Dr. William H. Schmidt, Philadelphia, Presentation of Clinical Cases from the Department of Physical Therapy of the Jefferson Hospital Dr. Alexander Hersh, New York, The Influence of Hot and Cold Applications on Temperature in the Mouth.

Dr. Winthrop M. Phelps, Baltimore, Recent Trends in the Treatment of Cerebral Palsy.

Drs Frederick M. Allen and Lyman W. Crossman, New York, Refrigeration Anesthesia for Extremity Surgery.

Dr. Washington Merscher, New York, Mobilizing American Spis.

Research on Problems of Alcohol.—According to Science the Research Council on Problems of Alcohol has the following studies under way:

ing studies under way:

A critical survey of all work completed to dite on the effects of alcohol on the individual by the New York University College of Medicine, with a grant of \$25,000 from the Carnegie Corporation.

A study of toxic factors in alcol olism by the New York State Pochatric Institute, with a grant of \$1,500 from the American Philosophical Society. The minimum value of services and facilities contributed by the institute is \$2,200.

A study of the role of alcohol in liver cirrhosis hy the New York University College of Medicine, with two grants, \$2,100 and \$1,500, from the Dazian Foundation for Medical Research The minimum value of services and facilities contributed by the university is \$7,200.

A study of reactions resulting from the ingestion of alcohol, for the altimate purpose of discovering how a craving for alcohol is established, by the Phipps Psychiatric Clinic of Johns Hopkins University, with a grant of \$1,800 from the council's research fund. The minimum value of services and facilities provided by the clinic is \$3,750

What happens to patients discharged as "cured" from the minimum value of services and facilities provided by the clinic is \$3,750

What happens to patients discharged as "cured" from the institution for alcoholics by Columbia University, with a grant of \$7,500 (for the first year) from the council's research fund

The effects of maternal alcohol ingestion on the fetal cortex i) the Medical College of Virginia, Richmond, with a grant of \$1,315 from the Medical College of Virginia, Richmond, with a grant of \$1,315 from the first year in the Medical School is \$500

An informal survey of a tonn of four thousand people to reveal the An informal survey of a tonn of four thousand people to reveal the extent of alcoholism and the adequacy of measures now in use for it retained by E. M. Jellinek of the Laboratory of Applied Physichory of treatment by E. M. Jellinek of the Laboratory of Applied Physichory of the mental use of technics being considered for a more extensive study

Report on Youth Health Program .-- More than a quarter of a million young persons have been given complete physical examinations since the national youth health program was instituted in September 1940, according to a recent report. Preliminary studies on the sixty-one thousand examinations showed that, while 70 per cent of the youths were found to be physically fit for any type of employment, medical and dental care was recommended for four out of five of the young people examined. The health program serves to reduce the number of young workers rejected by industry because of number of young workers rejected by industry because of physical defects and at the same time opens the way for rehabilitation of many who would otherwise be unable to contribute to the war effort. On July 1, 1941 the National Youth Administration established the Youth Work Defense Program, which it operates under the supervision of Lieut. Col. Nathaniel A. Burnell, director of defense training for both the Federal Security Agency and the Office of Production Management. This program consists of seven hundred and sixty-one local production projects and one hundred and seventy-five resident center projects, which comprise almost one thousand nine hundred shop units. These projects are distributed throughout the country, in all states and in most counties. During the period July 1941 through December 1941 more than one hundred and ninety thousand youths who received their work experience on NYA projects were able to obtain jobs in industry. More than thirteen thousand young workers were gaining experience in hospital duties through service as nurses' aides or ward attendants.

Federation of Societies for Experimental Biology .-The twenty-ninth annual meeting of the Federation of American Societies for Experimental Biology will be held in Boston, March 31-April 4. Each of the constituent societies will have its own headquarters as follows: Physiology, Hotel Statler; Biochemistry, the Copley-Plaza; Pharmacology, the Brunswick; Pathology, the Parker House, and Nutrition, Hotel Lenox. At a joint session of all groups in the Hotel Statler the following program will be offered:

Edward A. Doisy, Ph.D., St. Louis, Metabolism of Estrogens.

John R. Murlin, Ph.D., Rochester, N. Y., Nutritional Problems in
Relation to the Nation's Health.

Dr. Ralph M. Waters, Madison, Wis., Newer Viewpoints on Clinical
Anesthesia.

Frieda S. Robscheit-Robbins, Ph.D., Rochester, N. Y., Amino Acids in

rieda S. Robschert-Rooman,
Hemoglobin Formation.
eorge O. Burr, Ph.D., Minneapolis, Significance of the Essential George O. B. Fatty Acids.

There will be symposiums on vitamins and enzyme action, the metabolism of protein, contributions of physics to biochemistry and on morphine problems, deficiency diseases and mechanism of secretion. The Mead Johnson & Company "B Complex" Award will be presented during the first day's session of the American Institute of Nutrition on Wednesday. Thursday morning the pathologists will meet with the American Asso-ciation of Immunologists. On Friday there will be a round table conference of the Biochemistry group with the Biometric Section of the American Statistical Association. The con-stituent societies of the federation are the American Physistituent societies of the federation are the American Physiological Society, the American Society of Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics, the American Society for Experimental Pathology and the American Institute of Nutrition.

National Tuberculosis Meeting.—The thirty-eighth annual meeting of the National Tuberculosis Association will be held at the Bellevuc-Stratford Hotel, Philadelphia, May 6-9. The thirty-seventh annual meeting of the American Trudeau Society and the eighteenth annual meeting of the National Conference of Tuberculosis Secretaries will be held simultaneously. According to the preliminary program there will be panel discussions on "The Management of Patients with Occasional Positive Sputum After Apparently Adequate Therapy" and on the "Treatment of Postoperative Complications." Among the Among the speakers on the program will be:

Dr. Walter K. Whitehead, Northville, Mich., The Physiological Function of the Two Lungs Separately Under Varying Conditions, S. Reid Warren Jr., Sc.D., Philadelphia, Technical and Economical Factors Associated with the Production of Miniature Chest Roent-

Pactors Associated with agency and the Roentgenographic Pathologic Correlation of Tuberculous Calcifications in the Lung.

Dr. Chevalier L. Jackson, Philadelphia, The Development of Bron-

lation of Functional Processors of the Blood.

Dr. Chevalier L. Jackson, Philadelphia, Fine Schoelphia, Immunological Processes in Choscopy.

Florence B. Seibert, Ph.D., Philadelphia, Immunological Processes in Tuberculosis as Determined by Electrophoresis of the Blood.

William H. Feldman, M.S., and Drs. Horton Corwin Hinshaw, Frank C. Mann of Rochester, Minn., The Effect of Promin on Experimental Tuberculosis in the Guinca Pig.

On Thursday there will be one session devoted to "The Historical and Social Significance of the Tuberculosis Movement" and on Friday a symposium on "Tuberculosis Associations and National Defense." Dr. Henry C. Sweany, Chicago, Dr. Henry C. Sweany, Chicago,

will be chairman at a diagnostic and therapeutic clinical conference, Friday evening. The session will conclude Saturday morning with the following program:

Dr. Louis E. Siltzbach, New York, Medical Aspects of the Rehabilita-tion of the Tuberculous.

tion of the Tuberculous.

Dr. George H. Gehrmann, Wilmington, Del., Industry's Responsibility for the Worker's Health.

Dr. Arthur N. Aitken, Lockport, N. Y., Clinical Criteria for Determining Work Tolerance Following Pulmonary Tuberculosis.

Dr. J. B. McDougall, London, England, Tuberculosis and the War in England, paper to be read by Dr. George J. Wherrett, Ottawa, Ontario, Canada.

The fifteenth anniversary dinner of the Pennsylvania Tuber-culosis Society will be held Thursday night.

### LATIN AMERICA

Hospital News .- Ceremonies were recently held to lay the cornerstone of a new municipal medicosurgical teaching hospital at Avenida 28 de Setembro of Rio de Janeiro.

New Director of Public Health in Haiti.-Jules Thebaud, D.D.S., Port au Prince, Haiti, was appointed director of the National Department of Hygiene and Public Health in Haiti, January 16. Dr. Thebaud graduated at the University of Montreal in 1923. He has been director of the dental school in Port au Prince since 1928. He is the founder and president of the Sociéte Dentaire d'Haiti. Dr. Thebaud has taken graduate work at the New York College of Dentistry, Forsythe Dental Infirmary of Boston, University of Havana, Northwestern University and Columbia University, New York.

### Government Services

### National Conference on Industrial Hygiene

The fifth annual meeting of the National Conference of Governmental Industrial Hygienists will be held in Washington, D. C., April 9-11. Among the many papers to be presented at this meeting are the following: Mr. Verne A. Zimmer, director, Division of Labor Standards, U. S. Department of Labor, Washington, D. C., "The Activities of the Committee for the Conservation of Manpower in War Industries" and Dr. John G. Cunningham, Toronto, Canada, Province of Ontario Department of Health, "Canadian Experience in War Industries.

### Dr. Heacock to Coordinate Work of State Divisions

Lyman D. Heacock, D.D.S., Bethesda, Md., formerly of the California State Department of Health, has been appointed to the Division of Industrial Hygiene of the National Institute of Health to coordinate the work of the state divisions of dental health and industrial hygiene with the various plants and nonofficial agencies concerned with maintaining dental health. Dr. Heacock was to begin his work in Alabama on March 3. He will be available to any state requesting his services through the Division of Industrial Hygiene, National Institute of Health, Bethesda, Md.

### Dr. Fulton Named Health Chief in Bureau of Mines

Dr. William B. Fulton, Harrisburg, Pa., senior surgeon, U. S. Public Health Service Reserve, has been appointed chief of the health division in the Bureau of Mines, U. S. Department of the Interior. He will direct the bureau's expanding activities in safeguarding the physical welfare of thousands of workers in the mineral industries. The health division and safety branch seeks to reduce the occurrence of occupational diseases in these industries by the investigation of gases, dusts and other atmospheric contaminants, and by the development of adequate safeguards against such hazards. Physiologic studies of occupational diseases and the examination of respiratory devices such as gas masks are also a part of the work. Dr. Fulton graduated at the University of Pittsburgh School of Medicine in 1929. After completing his residency he practiced medicine for four years. In 1934 he became chief of the division of industrial hygiene of the Pennsylvania Department of Labor and Industry. Two years later he was transferred to the Pennsylvania Department of Health and appointed director of the Bureau of Industrial Hygiene, where he remained for five years. In January of this year he was appointed senior surgeon in the public health service reserve and detailed to duty with the Bureau of Mines. In 1941 Dr. Fulton received his master's degree in public health at the University of Pennsylvania.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Feb. 7, 1942.

### The Otolaryngologist in the War

At the Section of Laryngology of the Royal Society of Medicine the problems of the otolaryngologist in the war were discussed. The president, Mr. E. D. D. Davis, said that at the outbreak of war the work of the specialist, hospital and private, almost disappeared. He hoped that in the Emergency Medical Service (for the civilian war casualties) otolaryngologists would insist on sufficient staff, equipment and accommodation for efficient service and that in the army otolaryngology would no longer be the Cinderella of the specialties. Relatively few otolaryngologists could be adequately employed in their own specialty in the army, and the question was how to occupy them fully. The successful practice of otolaryngology required a sound knowledge of surgery; the otolaryngologist must not confine his attention to the ear, nose and throat. He could be trained in a short time as a war surgeon. The president suggested that ear, nose and throat work should be concentrated in one well equipped unit in each sector of the emergency hospital service, naval base, army command and air force hospital, each unit to have a minimum of two surgeons and assistants.

Surgeon Rear-Admiral C. P. G. Wakeley said that in the navy the ear, nose and throat surgeon also served as a general surgeon. In many instances there would not be enough work for him to do if he was limited to his specialty. As a rule, junior medical officers were selected for the work. They were given practical courses and then sent to the large base hospitals to take over a department under a senior who was a surgical specialist. After experience at the base hospital for two or three years, the young surgeon went to sea and probably became a specialist of his squadron. But during all this time he was doing general surgery.

Major D. Guthrie said that the military practice of the specialty differed considerably from the civil. Radical operations requiring long after-treatment had little place in the army. The object was to return the man to his unit as fit and as quickly as possible. The cases came under three heads: (1) routine cases, such as tonsillitis, deviated septum and various forms of sinusitis, (2) chronic otitis, still very common in the army and largely the result of long neglect, and (3) headache persisting after correction of errors of refraction and calling for attention to the ear, nose or throat.

### A Survey of the London Hospitals

The hospital system of this country, like many other things, will probably undergo changes as a result of the war. In the House of Commons the minister of health stated that in connection with the government's postwar policy he had ordered a survey of the hospitals (other than mental hospitals) of London and the surrounding area. The object is to ascertain what area would appropriately be served by a hospital system centered on London and what modifications or extensions of the existing hospital facilities would be desirable. The surveying officers will be Dr. A. H. M. Gray (dermatologist and president of the Royal Society of Medicine) and Dr. Andrew Topping (deputy health officer and school medical officer for the county of London). The former is associated with the voluntary hospitals, the latter with the municipal hospitals. But they have not been chosen as representatives of these two aspects of the problem. Their qualification is a large experience in separate fields of hospital administration. They are to advise how hospitals can give the best service to the public. The question of teaching will be separately considered.

### American Red Cross Aid to Britain

American Red Cross supplies to Britain are to be continued in spite of America's entry into the war. In a cablegram just received from the American Red Cross headquarters in Washington the chairman, Mr. Norman Davies, states that "While developments may curtail or restrict the movement of relief supplies to Great Britain, primarily because of increased difficulties of procurement and shipping, the American Red Cross does not contemplate drastic reduction of relief to Britain because of our entry into the war. While immediate and emergency needs in the Pacific may require some dispersion of supplies intended for Great Britain, our resources should be adequate to meet all urgent British needs which cannot be otherwise provided by lend-lease and which are within the scope of the established program of the American Red Cross, Its aid to Britain has now reached a total of \$37,800,000. A further \$3,100,000 worth of relief supplies has been sent to the Middle East.

### Rehabilitation of the Injured

In an address on the emergency hospital service Mr. Ernest Brown, minister of health, said that at the beginning of the war the hospitals were expected to receive thousands, even hundreds of thousands, of civilian casualties from air raids. There was a lull until the last four months of 1940, during which 80,000 casualties were treated in hospitals or first aid posts. The emergency hospital service was now no longer only a casualty scheme but one that tried to meet all new war needs as they arose. Specialist treatments were developed in selected centers. They included (1) orthopedic centers, which numbered twenty-one and covered all aspects of fracture treatment from the initial setting to physical therapy, remedial exercises and occupational therapy, (2) fracture departments (a), which numbered fifty-six and differed from the preceding only in not containing the highly specialized equipment for certain more difficult cases, (3) fracture departments (b), which numbered two hundred and thirteen and were mainly hospitals that in peacetime might be suitable for the second category but were now unsuitable for long stay cases owing to their vulnerable situation, and (4) fracture departments (c), which filled the gaps in areas which the hospitals did not conveniently cover.

### THE RESTORATION OF WORKING CAPACITY

This organization, with its four hundred and twenty-six establishments and eminent surgeons to advise the staff in every region aimed at the fullest possible restoration of working capacity and the training of and resettlement of the disabled person in a suitable occupation. Arrangements have been made for contact between the patient, his surgeon and a Ministry of Labor officer. This officer interviews the patient before he leaves the hospital and gives advice when the patient has decided what trade he is going into. A training course is arranged. Thus the emergency hospital service has made a great advance on the prewar treatment, which varied according to the initiative and resources of the local hospital. The entire treatment and retraining are correlated. The minister of health claimed that the rehabilitation organization has come to stay.

### The Bread Controversy

There seems to be no end to the bread controversy. Acting on the advice of the Medical Research Council, the government ordered the production of "national wheatmeal flour" of 85 per cent extraction instead of the usual 73 per cent. The council recommended that flour for the bread of the people should contain the germ of the wheat grain, as much as possible of the aleuron layer and the finer portion of the bran. The object was that the flour should contain as much as possible of the B vitamins and protein. The importance of a bread made with such protective qualities during this period of dietetic restriction is recognized by the medical profession. Unfortunately,

the specification made by the government has been so drawn up that the millers have been able to supply a flour without these valuable properties, which is nothing better than the old white flour, so rightly condemned, colored with bran so as to resemble the genuine wheatmeal loaf. The situation has been strongly criticized in the medical press. Sir Ernest Graham-Little (dermatologist and member of parliament) states in a letter to the Lancet that the Ministry of Food has extensively advertised the merits of the national wheatmeal loaf and yet its consumption amounts to only 7 per cent of the total bread consumption. Its composition is variable and it cannot be obtained over wide areas. He suggests that one nutritive factor in the increase of tuberculosis (mentioned in previous letters to THE JOURNAL) is the poor nutritive value of the white loaf, which is entirely deprived of the wheat germ. He attributes the position to the influence exerted by the milling industry through key positions held by members of it in the ministry.

### PARIS

(Trom Our Regular Correspondent)

Feb. 7, 1942.

### Athletics and Youth

In France the development of athletics especially among young people is considered important nowadays. A special Commissariat général à l'éducation générale et au sport has been created, the head of which is Bototra, who won with three other French athletes the Davis Cup in 1928 in the United States. The commissariat has local organizations in each department of France. The physical development of young persons is considered so important that an adolescent desiring to take his bachelor's degree has to pass an examination that proves his athletic qualification. In the schedule of the higher schools for boys from five to twenty-five hours have been devoted until lately to athletic pursuits; for girls it has been three hours a week. The commissariat's immediate program consists in constructing numerous gymnasiums or athletic fields. This activity has been criticized sharply by French physicians because of alimentary difficulties; nowadays all medical problems are regarded from the point of view of the food shortage. At the Academy of Medicine the late Professor Rathery emphasized the danger of excessive athletic activity of the young. He stated three principles to be observed; the constitution of those concerned and the limits of their body capacity, a strict adaptation of the requested charge to this capacity and a prescribed normal feeding. Recently Professor Lesne discussed this problem in detail before the Institut d'éducation physique. The calory requirement for moderate activity is 1,700 at 7 years of age. 1,700 from 7 to 9, 1,900 from 9 to 11, 2,000 from 11 to 12, 2,400 from 12 to 14 and 2,800 over 14. Normally there exists a

Heart Disease in Paris

		Deaths Caused 1	by Heart Disease
Year	Number	Number	Per Cent
1925	38,842	3,975	10 23
1934	30,445	4,515	14 83
1030	27,043	4,050	14 98

calory compensation for adolescents between 7 and 16 years. The organism requires from 900 to 1,500 calories for the support and growth of the body; therefore from 500 to 1,300 calories remain for use against cold and for muscular activity. The cold requires from 200 to 300 calories a day between the ages of 12 and 16 years in rooms having a temperature of 65 F. and 480 to 730 calories in rooms with temperature of 55 F. The caloric loss is less if the child wears warmer clothes. Normal activity at school requires 90 to 300 calories for five to six hours. For one hour of athletic exercise a loss of 200

to 250 calories can be assumed. All this is entirely covered by the caloric value of a normal feeding. The actual feeding, however, grants only a sufficient caloric value until the age of 7 years (1,225 calories). The quantity is insufficient for older children; the deficit for children above 14 years amounts to 1,500 to 1,600 calories a day. Even if the physical education

Deaths in Lyons

	Б	nown Causes,		A
Year		Number	Number	Per Cent
From 1887 to 1891		44,662	3,440	7.70
From 1912 to 1916		38,785	4,877	11,04
From 1927 to 1931 .		38,180	4,781	12 47
From 1938 to 1940 .		20.665	3,582	17,32
Last 6 months of 1941		4,663	864	18 52

of young persons is necessary for the normal development of the body, this exercise must be proportional to feeding. If there exists no possibility of providing a normal feeding it is necessary to shorten exercise and prolong rest and sleeping.

On the other hand, excessive activity of young people outside the school has been criticized. At an examination in the Centre d'examens des pilotes civils de la région Lyonnaise Drs. Delaigue and Leonet stated that of 175 candidates between 17 and 20 years of age 22 candidates, that is 12 per cent, proved inapt. These 22 candidates, nearly all athletes, who were examined clinically and by radioscopy, showed signs of cardiac insufficiency. An article entitled "La frénésie sportive et l'usure du coeur" by Auguste Lumière in the November 1941 issue of L'avenir medical gives figures on the increasing incidence of heart disease in Paris. The figures for Lyons for half a century also are striking.

On account of the feeding problem the Secrétariat pour la famille et la santé resolved to diminish for the current school year the physical education of children: for boys three hours instead of five, for girls two hours instead of three a week. In several departments the local athletic committees have also reduced play time for rugby, football and other strenuous games.

### The Shortage of Medicaments

For months the Academy of Medicine has studied the problem of the increasing shortage of indispensable medicaments. At the suggestion of the surgeon George Duhamel, a member of the Academy of Medicine, a commission has been created which is endeavoring to publish periodically a list of medicaments and chemical products becoming scarce. The commission observes also the consequence of this shortage in medical practice and tries to find substitute medicaments. Fourneau, Tiffeneau, Grosset, Loeper, Goris, Ramon, Guérin, Duhamel, Rathery and Fabré (newly elected) belong to this Commission de rationnement pharmaceutique. Most raw materials come from foreign countries, and the importation of these has mostly been cut off. A second reason consists in the difficulty of transportation and the shortage of packing material.

There is also a shortage of surgical material, for instance absorbent cotton, gauze and cellulose. Ether, chloroform and procaine hydrochloride, however, are not scarce. Professor Ramon, scientific head of the Pasteur Institute of Paris, reported that a shortage of vaccines is not to be feared.

In the latest list presented by Goris at a meeting Oct. 21, 1941 of the Academy of Medicine, caffeine, theobromine, bismuth salts, iodine, camphor, boric acid and its derivatives, petrolatum, quinine, opium and its alkaloids, glycerin, hydrous wool fat, cod liver oil, starch, dextrose, mustard meal, lactose, tartaric and citric acids, insulin, many alkaloids and many chemical and vegetable products were said to be extremely scarce or missing entirely. At the same time the Academy of Medicine published a list of substitutes for these medicaments, the effect of which is of course far less efficacious.

### Deaths

Alfred Simpson Taylor ® New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1895; at one time instructor and professor of operative surgery and lecturer in neurosurgery at his alma mater; professor of clinical surgery at the Cornell University Medical College from 1910 to 1930; an Affiliate Fellow of the American Medical Association; member of the American Surgical Association, Society of Neurological Surgeons and the American Neurological Association; fellow of the American College of Surgeons; formerly senior attending neurological surgeon at the Neurological Institute; consulting neurological surgeon at the Hospital for Ruptured and Crippled, St. Luke's Hospital, Memorial Hospital for Treatment of Cancer and Allied Diseases, Tarrytown (N. Y.) Hospital and the Overlook Hospital, Summit, N. J.; aged 73; died, January 16, of brain tumor.

Edgar Alexander III ® Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1910; member of the American Urological Association and the American Radium Society; fellow of the American College of Surgeons; past president of the Essex County Medical Society; for many years member of the board of education; served during World War I; attending surgeon, St. Michael's Hospital and the Hospital of St. Barnabas and for Women and Children; consultant, Essex County Hospital, Belleville, Rahway (N. J.) Hospital, South Amboy (N. J.) Hospital, Muhlenberg Hospital, Plainfield, Somerset Hospital, Somerville, Perth Amboy (N. J.) General Hospital and the Irvington (N. J.) General Hospital; aged 59; died, February 1, of illuminating gas poisoning, self administered.

George Clute Reid, Rome, N. Y.; Baltimore Medical College, 1902; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; owner and formerly medical director of the Rome Infirmary; on the staff of the Rome Hospital and Murphy Memorial Hospital; member of the board of managers of the Oneida County Hospital; president of the board of managers of the Oneida County Tuberculosis Sanatorium (Broadacres), Utica; aged 63; died, January 8, in Palm Springs, Calif., of multiple myeloma.

Cassie Belle Rose-Thatcher & Boulder, Colo.; Rush Medical College, Chicago, 1914; member of the American Roentgen Ray Society, the Radiological Society of North America and the American College of Radiology; formerly associate professor of surgery (radiology) at her alma mater; for many years radiologist to the Presbyterian Hospital, Chicago; on the staff of the Porter Sanitarium and Hospital, Denver, and the Boulder-Colorado Sanitarium and Hospital; aged 58; died, January 18, of carcinoma of the cervix.

Floyd James Lee 
Santa Monica, Calif.; College of Medical Evangelists, Los Angeles, 1924; assistant professor of gynecology at his alma mater; past president of the Santa Monica branch of the Los Angeles County Medical Society; fellow of the American College of Surgeons; aged 43; gynecologist, White Memorial Hospital, Los Angeles; on the staff of the Los Angeles County Hospital, Los Angeles, and the Santa Monica Hospital, where he died, January 3, of coccidioidal granuloma of the mediastinal glands.

George Percy Sprague & Lexington, Ky.; Jefferson Medical College of Philadelphia, 1890; past president of the Southern Psychiatric Association; member of the American Psychiatric Association and the Central Neuropsychiatric Association; formerly on the staff of the Danvers (Mass.) State Hospital; for many years owner and consultant of the High Oaks Sanatorium; aged 78; died, January 18, of subdural hemorrhage resulting from a fall.

Elias Cecil Fischbein & Dayton, Ohio; Cornell University Medical College, New York, 1905; member of the American Psychiatric Association; served during the World War; formerly medical director of the Orchard Springs Sanitarium; on the consultant staff of the Dayton State Hospital; on the staff of the Good Samaritan Hospital and the Miami Valley Hospital, where he died, January 21, of coronary thrombosis, aged 58.

Jesse Herbert Teague, Laurens, S. C.; University of Maryland School of Medicine, Baltimore, 1900; member of the South Carolina Medical Association; past president of the Laurens County Medical Society; served as chairman of the board of trustees of the city schools; aged 69; died, January 5, in the Laurens County Hospital of staphylococcic septicemia.

Max C. Starkloff € St. Louis; St. Louis Medical College, 1881; past president of the International Society of Medical Health Officers; formerly city health commissioner; past president of the United States Board of Pension Examining Surgeons; in 1918 member of the Volunteer Medical Service Corps, Council of National Defense; aged 83; died, January 15.

Hugh James Downey, Pittsfield, Mass.; Chicago College of Medicine and Surgery, 1912; member of the Massachusetts Medical Society; past president and secretary of the Berkshire District Medical Society; on the staffs of St. Luke's Hospital and the House of Mercy Hospital; aged 59; died, January 31, of cerebral hemorrhage and chronic nephritis.

Filippo Cassola New York; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1899; aged 66: on the staff of the Mother Cabrini Memorial Hospital; surgeon and president of the medical board of the Columbus Hospital, where he died, February 28, of hepatic cirrhosis with hemorrhage from esophageal varices.

Raymond Robert Westover & Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1906; aged 58; associate surgeon at the Bethany Deaconess Hospital; attending surgeon and chairman of the medical board of the Evangelical Deaconess Hospital, where he died, January 12, of coronary thrombosis.

Martha Maria Brewer Lyon ⊕ South Bend, Ind.; Howard University College of Medicine, Washington, D. C., 1907; member of the Association for Research in Ophthalmology; formerly secretary of St. Joseph County Medical Society; aged 70; died, January 18, in the Epworth Hospital of pulmonary tuberculosis.

Edward Rutledge & Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1896; clinical professor emeritus of medicine at his alma mater; for many years physician and surgeon for the city fire department; on the staff of the Roper Hospital; aged 71; died, January 9, of cerebral hemorrhage.

Carl Joseph Harris, Washington, D. C.; University Medical College of Kansas City, Mo., 1900; medical consultant with the Board of Appeals of the Veterans Administration; veteran of the Spanish-American War; aged 65; died, February 22, in the George Washington University Hospital of hypertensive heart disease.

James Francis Cox & Bangor, Maine; Medical School of Maine, Portland, 1909; past president of the Penobscot County Medical Society; served during the World War; aged 61; on the staff of the Eastern Maine General Hospital, where he died, January 18, of gastric hemorrhage.

Henry Reeves Link & Palestine, Texas; Bellevue Hospital Medical College, New York, 1889; past president of the Anderson County Medical Society; formerly county health officer; on the staff of the Palestine Sanitarium; aged 76; died, Dec. 25, 1941, of bronchiectasis.

Joseph Stocking Lewis & Elmira, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1906; past president of the Medical Society of the County of Chemung; on the staff of St. Joseph's Hospital; aged 61; died, January 21, of coronary occlusion and arteriosclerosis.

Robert Millard Deming & Glencliff, N. H.; University of Vermont College of Medicine, Burlington, 1916; served with the British Army during World War I; medical director and superintendent of the New Hampshire State Sanatorium; aged 47; died, January 28, of heart disease.

Frank Downey Travis, Ponchatoula, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1911; member of the Louisiana State Medical Society; aged 57; died, January 5, in a hospital at New Orleans of adenocarcinoma of the rectum and bronchopneumonia.

Stanton Jacob Ten Broeck, Orange, Mass.: University of the City of New York Medical Department, 1893; member of the Massachusetts Medical Society; aged 70; died, January 14, in the New England Baptist Hospital, Boston, of metastatic carcinoma of the pleura.

Oscar M. Richards, Easton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1890; member of the Medical Society of the State of Pennsylvania; on the auxiliary staff of the Easton Hospital; aged 76; died, January 23, of cerebral thrombosis.

Clinton D. Vermillion, Tescott, Kan.; College of Physicians and Surgeons, Medical Department Kansas City University, Kansas City, 1901; member of the Kansas Medical Society; aged 73; died, Dec. 27, 1941, in Salina of aortic stenosis and coronary sclerosis.

William Blount Turner II € Knoxville, Tenn.; University of Cincinnati College of Medicine, 1924; acting health officer in Anderson County, Ky., from September 1938 to June 1939; aged 42; died, January 10, in Richmond, Ky., of coronary thrombosis.

John Thomas Finley, Prairie du Rocher, III.; Eclectic Medical College, Cincinnati, 1927; member of the Illinois State Medical Society; formerly mayor and deputy coroner; aged 44; died, January 25, of malignant hypertension and chronic myocarditis.

Hans Peter Gotfredsen, Lowell, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1906; served during World War I; aged 61; died, January 27, in the Blodgett Memorial Hospital, Grand Rapids, of coronary thrombosis.

Robert Marshall West, Salisbury, N. C.; Medical College of Virginia, Richmond, 1900; member of the Medical Society of the State of North Carolina; on the staff of the Rowan Memorial Hospital; aged 72; died, January 14, of angina pectoris.

Beecher Johnson Terrell ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1894; member of the Indiana State Medical Association; served during World War I; aged 72; was killed, January 14, when his automobile was struck by a train.

Theodore Jacob Ewonchuk, St. Vital, Man., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1933; aged 35; died, Dec. 19, 1941, in St. Boniface Sanatorium.

William K. Ruble, Wilmington, Ohio; Eclectic Medical Institute, Cincinnati, 1890; for many years county health officer; aged 79; died in January of myocarditis.

William H. Atkinson, Killeen, Texas; University of Tennessee Medical Department, Nashville, 1891; aged 88; died, Dec. 12, 1941, in Waco of senility.

Albert George Webster & Baltimore; University of Maryland School of Medicine, Baltimore, 1911; aged 56; died, Dec. 20, 1941, of carcinoma of the colon.

Albert Frank Streuter 

Arenzville, Ill.; Northwestern University Medical School, Chicago, 1906; aged 66; died, Dec. 17, 1941, in Beardstown.

William Medwin Tucker, Long Beach, Calif.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; aged 75; died, Dec. 14, 1941.

William Guss Jefferson, Steelton, Pa.; Howard University College of Medicine, Washington, D. C., 1924; aged 43; died, Dec. 21, 1941.

Alan Callender Sutton, Laguna Beach, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1916; aged 49; died, Dec. 4, 1941.



Killed in Action At Pearl Harbor

RICHARD REDNER RALL, LT. (J. G.), M. C., U. S. NAVY, 1909-1941 (See The Journal, January 24, p. 316)



Killed in Action At Pearl Harbor

SAMUEL EARLE JOHNSON, COMMANDER, M. C., U. S. NAVY, 1889-1941 (See The Journal, January 31, p. 398)



Killed in Action At Pearl Harbor

WILLAM RHINEHART SCHICK, 1ST LT., M. R. C., U. S. ARMY, 1910-1941 (See The Journal, January 24, p. 316)

Fred Warren Freeman, Saginaw, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882; member of the Michigan State Medical Society; aged 84; died, January 21, of myocarditis and chronic nephritis.

Isaac High Shelly, Norristown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1910; served during World War I; formerly on the staff of the Montgomery Hospital; aged 55; died, January 2, of cerebral hemorrhage.

Ellis Ray Shilling & Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1909; member of the American Society of Clinical Pathologists; aged 56; died, January 21, in the Grant Hospital of cardiovascular renal disease.

Henry Calvin Brown € San Jose, Calif.; Rush Medical College, Chicago, 1887; for many years health officer of San Jose; aged 79; died, Dec. 30, 1941, in the San Jose Hospital of cerebral hemorrhage.

William Clark Fisher & Williamson, Iowa; State University of Iowa College of Medicine, Iowa City, 1893; aged 71; died, January 17, in the Yocum Hospital, Chariton, of coronary occlusion.

James Moore, Brooklin, Ont., Canada; Trinity Medical College, Toronto, 1899; served during World War I; for many years registrar of deeds of Ontario County; aged 69; died, Dec. 17, 1941.

Gerald Joseph Forster, Belleville, Ont., Canada; University of Toronto Faculty of Medicine, 1910; aged 56; died, Nov. 27, 1941.

Alexander Raymond, San Francisco; College of Physicians and Surgeons of San Francisco, 1905; aged 72; died, Dec. 8, 1941.

James Edward Shafer, Berkeley, Calif.; Hahnemann Medical College of San Francisco, 1897; aged 78; died, Dec. 18, 1941.

Ida Belle Baker Page, Manchester, N. H.; Tufts College Medical School, Boston, 1903; aged 63; died, Nov. 9, 1941.

Frank J. A. MacDonell, Detroit; Detroit College of Medicine, 1899; aged 67; died, January 16, of heart disease.

Rufus L. Dooley, Montezuma, Ind. (licensed in Indiana in 1897); aged 79; died, January 25, of chronic nephritis.

John Carson Halpin, Springfield, Ill.; St. Louis Medical College, 1883; aged 84; died, January 20, of myocarditis.

Edwin S. Wiggers, Cincinnati; Pulte Medical College, Cincinnati, 1895; aged 68; died, January 11, of angina pectoris. Ivadell Rogers, Pryor, Okla.; Eclectic Medical Institute,

Ivadell Rogers, Pryor, Okla.; Eclectic Medical Institute, Cincinnati, 1898; aged 75; died, January 17, of pneumonia.

Leopold Deutsch, Cleveland; Starling Medical College, Columbus, 1896; aged 73; died in January.

### Correspondence

# TREATMENT OF HOOKWORM INFECTION

To the Editor:—On page 679 of the February 21 issue of The Journal the question of therapy of hookworm infection is discussed. The answer to the question begins as follows: "The drug of choice in hookworm disease is hexylresorcinol," and a little further down the following statement: "Hexylresorcinol in a single dose will remove 80 to 100 per cent of the parasites. . . ."

I believe that both of these statements are rather misleading and not strictly in accord with the scientific data available. Hexylresorcinol seldom removes more than 70 to 75 per cent of the hookworms present. Occasionally it removes more and often it removes less. It is rather expensive, particularly in view of the fact that hookworm infection occurs in the lower economic groups. Tetrachlorethylene, in general, is much more effective in the removal of hookworms. This drug will remove from 80 to 97 per cent of all the hookworms present; frequently it will remove 100 per cent of the worms. It is much cheaper than hexylresorcinol and has the added advantage that it is a liquid and therefore more easily administered to children.

Having done a large share of the anthelmintic work on hexyl-resorcinol, I am of course a strong advocate of this drug—especially for ascariasis and mixed hookworm and ascaris infections. I feel however, on a basis of a large experience, that it is not the drug of choice in the treatment of hookworm infection. For additional information on this subject I refer to "Intestinal Parasitic Worms in the United States—Their Diagnosis and Treatment" (The Journal, Sept. 1, 1934, p. 651).

H. W. Brown, M.D., Chapel Hill, N. C.

### SUGAR IN THE DIET

To the Editor:—Now it can be told! Today, when we are confronted by the inestimable nutritional boon of sugar restriction, cannot those who have the health of the nation in keeping, those who have pointed out that some forty million people in this country are not properly nourished, make it plain to the public as a whole that a large role in this deficit of minerals and vitamins is due to the excessive consumption of sugar-refined sugar which supplies energy without any other nutritive assets? The public should be brought to understand that sugar as such is no necessity, that the energy can better be derived from foods that carry other essential nutrients. Even the youngest artificially fed infants today are usually provided with extra carbohydrate in the form of corn syrup.

All those concerned with nutrition have long felt that the excessive consumption of sugar in this country is detrimental to the public health. Whether or not this affects the prevalence and severity of diabetes or the early decay of teeth or other specific disease, the mere fact that almost a quarter of the caloric intake of the nation (and will this estimate be greatly changed if Dr. John Rice's recent demonstration of the waste of 2,500,000 pounds daily in New York City proves true for the country as a whole?) is in the form of sugar makes a sufficiency of B vitamins almost impossible. Numerous reports have demonstrated the paucity of these essential nutrients in the diet in both the United States and Canada. The attempt in peace time to change such entrenched dietary habits has seemed to most workers practically hopeless, especially in view of the tremendous commercial interests concerned. Even the enrichment of refined sugar has been advocated.

But, now, in our peril, faced with the need of sugar for other purposes and of man power in all directions, cannot the nation benefit from an even greater restriction than is now contemplated? Cannot the government further the diversion of sugar crops to other more beneficial ones and find a better use for the men employed in the commercial manufacture and distribution of sweets? Cannot the numerous newspaper food columns make known the superiority of fresh and dried fruits in place of pies, doughnuts, candies, gum and sweetened canned Cannot the numerous society and moving picture women who want to contribute to the war effort make such desserts fashionable? And may we not plan to keep these benefits in peace time? May we not hope that some of the war time habits develop into permanent tastes if their benefit to the public health is clearly understood? Today, in time of war, every man, woman and child should know that in the restriction of sugar he is not just putting up with an inconvenience, such as foregoing silk stockings or new ice boxes, but is positively contributing to his own health and thus to the strength of the nation. R. A. Guy, M.D., Boston.

### THE de SCHWEINITZ MEMORIAL FUND

To the Editor:—Through the death of Dr. George de Schweinitz in 1938 the medical profession lost one of its greatest leaders, the city a splendid citizen and his many patients a devoted friend. It seems fitting that some permanent memorial be established in Dr. de Schweinitz's name in the University of Pennsylvania, where so much of his life was spent.

With the acquisition of his medical books by the School of Medicine, his friends and former associates plan to equip and furnish a room in the University Hospital to be known as the de Schweinitz Memorial Library. The cost of remodeling such a room, in which his collection of books can be properly housed and which will probably contain his portrait, is estimated at about \$5,000.

When completed, this library will be open to all physicians and medical students and will comprise one of the best collections of ophthalmologic literature in this country.

It is hoped that all his friends will contribute toward the realization of this goal, and the committee will gratefully accept any donation toward this sum, large or small.

EDMUND R. PURVES, 3446 Walnut Street, Philadelphia.

Chairman, The de Schweinitz Memorial Fund.

### "TRAUMATIC" SURGERY

To the Editor:—Pardon this dissertation from one who has repeatedly left himself open to the double charge of being a carping critic and a persistent purist. The present item is evoked by reading papers concerning a branch of the surgical art which is gradually coming into its own, assuming a scientific aspect and is now of special interest—"traumatic surgery."

I wish medical authors could be persuaded not to use tautologic terms. I wonder whether they ever consider the meaning
of the word trauma (traw-mah). As I know it, trauma (Gr.)
is a wound, an injury, inflicted, suddenly as a rule, by some
physical agent. Then how can one justify "traumatic wounds,"
"traumatic injury" and the like as titles of articles? If I should
be asked what other titles should be used I would reply that it
is up to the authors, who are supposed to be aware of what
they are writing about.

HUBERT A. ROYSTER, M.D., Raleigh, N. C.

### Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

### UNITED STATES PUBLIC HEALTH SERVICE

Examination Assistant Surgeon (medical only), commissioned corps Examinations will be held as follows

L S Marine Hospital, New Orleans
Liaison Office, U S P H S, Room 319, Grant Bidg, Atlanta,
G1

March 31 Apply Surgeon General U S P H S, Washington D C

# NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in The Journal, March 21, page 1000

### BOARDS OF MEDICAL EXAMINERS

ALABAMA Montgomery, June 16 18 Acting Sec, Dr B F Austin 519 Dexter Ave, Montgomery
ARIZONA * Phoenix, April 7 8 Sec, Dr J H Patterson, 826 Security

19 Detter Ave, Montgomer, ARIZONA * Phoenix, April 78 Sec, Dr J H Patterson, 820 Security ARIZONA * Phoenix, April 78 Sec, Dr J H Patterson, 820 Security Bldg, Phoenix
ARIZONA * Phoenix, April 78 Sec, Dr J H Patterson, 820 Security ARIZONA * Medical Little Rock, June 45 Sec, Dr Clarence H Young, 1415 Main St, Little Rock, June 45 Sec, Dr Clarence H Young, 1415 Main St, Little Rock
California Written San Francisco, June 29 July 2 Oral examination (required when reciprocity application is bised on a state certificate or license issued ten or more years before filing application in California) Los Angeles May 20 Sec Dr Charles B Pinkham, 1020 A St, Sacramento
DELAWARE Dover, July 1416 Sec Medical Council of Delawate, Dr Joseph S McDaniel 229 S State St Dover
LLORIDA * Jacksonville, June 22 23 Sec, Dr William M Rowlett, Box 786, Tampa

Luna Sec. State Examining Boards Mr R C

Department Bover, July 1940 Sec Medical Council of Delawite, Dr Joseph S McDaniel 229 S State St Dover 1 LORIDA * Jrcksonville, June 2223 Sec, Dr William M Rowlett, Box 786, Tampa Georgia Atlanta June Sec, State Examining Boards Mr R C Colemin, 111 State Capitol, Atlanta Hawati Honolulu Juli 1316 Sec Dr James A Morgan, 55 Young Bldg, Honolulu Juli 1316 Sec Dr James A Morgan, 55 Young Bldg, Honolulu Juli 1316 Sec Board of Registration, Mr Philip M Harman, Department of Registration and Education, Springfield Indianapolis June 1618 Sec Board of Registration and Examination Dr J W Bowers 301 State House, Indianapolis Iona * Iona City, May 1113 Dir Division of Licensure and Registration Mr H W Grefe Capitol Bldg, Des Moines Kansas Annsas City June 23 Sec Board of Medical Registration and Examination, Dr J F Hassig, 905 N Seventh St Kansas City Kentucky Louisville May 2729 Sec, State Board of Health, Dr A T McCormack, 620 S Third St, Louisville Maraland Medical Baltimore June 912 Sec, Dr John T O'Vara 1215 Cathedral St Baltimore Homeopathic Baltimore June 1617 Sec, Dr John A Lans 612 W 40th St Baltimore June 1617 Sec, Dr John A Lans 612 W 40th St Baltimore June Michigan * Ann Arbor and Detroit, June 1012 Sec Board of Registration in Medicine, Dr J Earl McIntyre 202 4 Hollister Bldg, Lansing Minnesona * Minneapolis April 2123 Sec Dr Julian F Du Bois, 230 Lowry Medical Arts Bldg, St Paul Mississipri Jackson June Assistant Sec State Board of Health Dr R N Whitfield Jackson Missourt St Louis June 46 Sec Board of Health Dr James Stewart State Capitol Bldg Jefferson City Montana Helena, April 78 Sec Dr Otto G Klein First National Brink Bldg Helena

Venan Hirtern Min 4 Reciprocity with oral examination May 4 Applications must be on file not later than April 20 Sec Dr Trederick Anderson, 215 N Carson St Carson City

New Jersen Trenton June 16 17 Sec Dr Earl S Hallinger, 28 W State St Trenton State St Trenton June 16 17 Sec Dr Learl S Hallinger, 28 W State St Trenton State State Board of Scan Plaza Santa Fe

New Jersex Trenton June 16 17 Sec Dr Earl S Francisco, New Mexico * Santa Fe April 13 14 Sec Dr I e Grand Ward 134 Sena Plaza Santa Fe North Carolina Raleigh June 15 Sec Dr W D Junes Hamlet North Dakota Grand Lorks July 7 10 Sec Dr G M Williamson 1 S Third St, Grand Porks Ohthousenest April 7 Hitten Columbus June Sec Dr H M Platter 21 W Broad St, Columbus Oblahoma * Oklahoma Cuty June 3 4 Sec Dr James D Osborn Le Frederick

OREGON * Portland April 7 Exec Sec Miss I orienne M Conlee, 188 Failing Bldg, Portland Pensyllamia and Pittsburgh July Act Sec Bureau of Professional Licensing Mrs Marguerite G Steiner, 358 I duration

of Professional Licensing Mrs Marguerite G Steiner, 358 I duction I ldg Harrisburg Rinde Island * Providence April 2.3 Chief, Division of Examiners, Mr Thomas B Cases, 366 State Office Bldg Providence South Carolina Columbia June 22.24 Sec Dr A Earle Boozer, 505 Saluda Ave Columbia June 22.24 Sec Dr A Earle Boozer, 505 Saluda Ave Columbia South Dakota * Pierre July 21.22 Dir, Medical Licensure Dr I F D Cook State Board of Health Pierre Lain Salt Lake City June 29.30 Assistant Dir Department of Resistration Mr G N Billings, 324 State Capitol Bldg Salt I ake City Vermon T I J Lawliss Richford Vermina Richmond June 16.18 Sec., Board of Medical Registra ton Dr I J Lawliss Richford Vermina Richmond June 17.20 Sec Dr J W Preston 301, Linklin Rd Roanoke Wisconsin * Milwaukee June 30 July 3 Sec Dr H W Shutter, 425 E Wisconsin Ave Milwaukee Wyoun's Chevenne June 12 Sec Dr M C Keith Capitol Bldg, Wyoun's Chevenne June 12 Sec Dr M C Keith Capitol Bldg,

425 E Wiss WYOMING Chevenne June 12 Sec Dr M C Keith Capitol Bldg,

### * Basic Science Certificate required

### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICATION New June 13 Address State Board of Healing Arts 1945 Haven Vile Stition New Haven
District of Collabila Washington April 20 21 Sec Commission on licensure Dr George C Ruhland, 6150 E Municipal Ridg Washington Florida Gainesville June S Sec Profes or I F Conn John B Stetson University De Land
Iowa Des Moines April 14 Dir Division of Licensure and Regis tratien Mr H W Grete, Capitol Bldg Des Moines

MINNESOTA Minneapolis, April 78 Sec., Dr. J. C. McKinley, 126
Millard Hall, University of Minnesota, Minneapolis
NEBRASKA Omaha, May 56 Dir. Bureau of Evamining Boards,
Mrs. Jeannette Crawford, 1009 State Capitol Bldg., Lincoln
New Mexico. Springer, June 12 Sec., Miss. Pia Joerger, State
Capitol. Santa Fe.

Nen Mexico Capitol, Santa Fe OLLAHOMA OI Oklahoma City, May 15 Sec., Dr Oscar C Newman,

Shattuck Shattuck
OREGON Corvallis, July 11 Application must be on file not later than June 24 Sec, Mr Charles D Byrne, Umiversity of Oregon, Eugene RHODE ISLAND Providence May 20 Chief, Division of Examiners, Mr Thomas B Casey, 366 State Office Bidg Providence SOUTH DAROTA Vermillion, June 56 Sec Dr G M Evans Yankton Wisconsin Midson April 11 Sec Prof Robert Bauer 152 W Wisconsin Ave Milwaukee

### Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Liability of Employer for Negligent First Aid Supplied by Nurse -On June 2, 1936 the plaintiff was struck in the right eve by a steel chip. He reported the accident to his employer and was directed to a nurse in charge of the defendant's first aid station for treatment The nurse rubbed the plaintiff's eye with a piece of cotton and, it was alleged, negligently caused the steel fragment to be pressed beneath the surface of the eyeball so that it was not visible from outward inspection and could not be felt by the plaintiff when he moved his eyelid From June 2 to July 12, 1936, the plaintiff was treated by the nurse, who repeatedly assured him that the eye would soon be all right, that the black spots which he continually saw would disappear and that it was not necessary for him to consult a physician or surgeon By July 1, 1937, however, the eye had become so discolored and the vision so impaired that the plaintiff consulted physicians underwent an unsuccessful operation for removal of the chip and finally lost the sight in the eye completely Subsequently the plaintiff filed a suit for damages against the defendant employer contending that the defendant was negligent in causing him to be treated by an unskilled, incompetent person after voluntarily assuming to render medical aid. From an order sustaining the defendant's demurier and dismissing the complaint, the plaintiff appealed to the Supreme Court of Montana

The defendant contended that the provisions of the workmen's compensation act were exclusive and that the plaintiff was barred from maintaining an action at law against his employer for damages for an injury arising out of and in the course of his employment. The court held that there was nothing in the act which deprived the plaintiff of the right to bring this action In the first place, the act was exclusive only so far as accidents arising out of and in the course of the employment were concerned The injury of which the plaintiff complained was sustained at the defendant's first aid station some distance from the mine and at a time when the plaintiff was not working for the defendant, therefore the mjury caused by the negligent treatment by the nurse was not within the terms of the act In the second place, said the court, the workmen's compensation act did not require an employer to furnish medical aid to its employee For this additional reason, therefore, the plaintiff was not limited to a recovery under that act. Even though the defendant was not bound to furnish medical assistance for the plaintiff, the court continued, once it undertook to do so it was required to exercise reasonable care in the selection of a competent person to render such assistance and if, through its failure to exercise care and diligence the person selected was incompetent and unskilful and by reason of unskilful treatment the employee or servant was injured the defendant would be liable. In other words, having once accepted the responsibility of furnishing medical attention for the plaintiff, the defen dant was under the same obligation as though he had been required to do so by law in the first place. Finally, the Supreme Court held that the plaintiff's cause of action was not barred by section 2909 of the Revised Codes which provides that an employer is not liable for any act in connection with the treatment or malpractice in the treatment of any injuries sustained by an employee The gravamen of the plaintiff s cause of action, said the court was not based on mulpractice in any sense of

the word; it was based entirely on the alleged negligence of the defendant in selecting an unskilled person to treat the plaintiff.

The Supreme Court therefore concluded that the plaintiff's action was not barred by the provisions of the workmen's compensation act and held that the defendant's demurrer should not have been sustained. The judgment of dismissal was therefore reversed and the cause remanded to the trial court.-Vesel v. Jardine Mining Co., 100 P. (2d) 75 (Mont., 1940).

Workmen's Compensation Acts: Refusal of Employee to Submit to Operation .- While fighting a fire in the basement of a home, the plaintiff, a fireman, was exposed to smoke and gas and subsequently developed an inflammation of the trachea and lungs which caused violent coughing. An examination by physicians disclosed that he was suffering from a substernal growth that apparently had been aggravated by the exposure. After being paid compensation for a period of time, the plaintiff submitted to a number of physical examinations by physicians appointed by the industrial commission. These physicians reported to the commission that the plaintiff could be restored to health if he would submit to an operation to remove the growth. The plaintiff refused to undergo the operation, and the commission ordered that compensation payments cease because of such refusal. The order of the commission having been affirmed by the district court, the plaintiff appealed to the Supreme Court of Colorado.

The plaintiff refused to submit to the operation because he was afraid it would prove fatal. He relied solely on the testimony of the physician of the Fire and Police Department, who was his only expert medical witness. That witness stated that he had examined the plaintiff many times and that in his opinion the growth in the plaintiff's neck was a sarcoma, the removal of which might bring on serious results. On the other hand, seven qualified and reputable physicians, appointed by the commission to examine the plaintiff, diagnosed his condition as a substernal nontoxic goiter, not a sarcoma. They testified that this growth could be removed without much difficulty by means of an incision made in the plaintiff's neck. There was some testimony that the necessary operation would be more serious than an appendectomy or an operation for gallstones. The seven physicians were all agreed, however, that, although the operation to remove the growth was considered a major one, the risk involved was no greater than average and the plaintiff's chances of survival were at least 85 per cent. In conclusion, the seven physicians testified that, by means of the operation, the plaintiff could be practically restored as a working unit.

The plaintiff contended that, when an employee relies on the advice of his own physician and refuses to undergo a major operation attended by the hazards of loss of life, his refusal to submit is not unreasonable. The Supreme Court admitted that to be the rule but said that it could not be applied in this case, in the light of the evidence introduced, unless the court was willing to hold as a matter of law that all major operations involve serious risk to life or member. The plaintiff argued that the question of the reasonableness of his refusal to submit to the operation actually was a question of law and that the courts were not bound by the conclusion of the Industrial Commission. Chapter 97, Section 360 ('35 C. S. A.) provided, in part:

. shall refuse to submit to such If any employee . gical treatment as is reasonably essential to promote his recovery, the commission may, in its discretion, reduce or suspend the compensation of any such injured employee.

The Supreme Court held that under the foregoing statute the industrial commission was vested with the authority to determine the reasonableness of the plaintiff's conduct. To sustain the plaintiff's contention, the court continued, would nullify that discretion. In view of the great weight of evidence sustaining the commission's holding, the Supreme Court concluded that the discretion lodged in the commission had not been abused and that the claimant should be required to submit to the proposed The judgment for the defendant was therefore affirmed .- Overton v. City and County of Denver et al , 102 P. (2d) 474 (Colo., 1940).

# Society Proceedings

### COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, Apr. 21-23, Alabama, Medical Association of the State of, Montgomery, Apr. 21-23, Dr. D. L. Cannon, 519 Devter Avenue, Montgomery, Secretary, American Association for Thoracic Surgery, St. Louis, May 13-16. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary, American Association of Anatomysts, New York, April 1-3, Dr. Eliot R. Clark, Dept. of Anatomy, University of Pennsylvania School of Medicine, Philadelphia, Secretary.

American Association of Industrial Physicians and Surgeons, Cincinnat, Apr. 13-17. Dr. Edward C. Holmblad, 28 Fast Leelson Ried, Chicago.

American Association of Industrial Physicians and Surgeons, Cincinnate, Apr. 13-17. Dr. Edward C. Holmblad, 28 East Jackson Blvd, Chicago, Managing Director.

American Association of Pathologists and Bacteriologists, St. Louis, April 23. Dr. Howard T. Karsner, 2085 Adelbert Rd., Cleveland, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., May 3-5. Dr. Henry E. Sigerist, 1900 East Monument St., Bultimore, Secretary. Secretary.

Secretary.

American Association on Mental Deficiency, Boston, May 13-16. Dr. Neil A. Dayton, 100 Nashua St., Boston, Secretary.

American College of Physicians, St. Paul, Apr. 20 24. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.

American Federation for Clinical Research, Minneapolis, Apr. 20 21. Dr. Thomas M. Durant, 3401 North Broad St., Philadelphia, Secretary.

American Pediatric Society, Sky Top, Pa., Apr. 30-May 2. Dr. Hugh McCulloch, 325 North Euclid Ave. St. Louis, Secretary.

American Physiological Society, Boston, March 30 April 4. Dr. Carl J. Wiggers, 2109 Adelbert Rd., Cleveland, Secretary.

American Psychiatric Association, Boston, May 18-22. Dr. Winfred Overholser, St. Elizabeths Hospital, Washington, D. C., Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 4. Dr. Eugene M. Landis, University of Virginia Hospital, Charliottesville, Va., Secretary.

Dr. Eugene M. Landis, University of Virginia Hospital, Charlottesville, Va. Secretary.

American Society for Experimental Pathology, Boston, April 1-3. Dr. Harry P Smith, Medical Laboratory Bildg, Iowa City, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Boston, March 31-April 4, Dr. Raymond M. Bieter, University of Minnesota Medical School, Minneapolis, Secretary.

American Society of Biological Chemists, Boston, Apr. 7. Dr. A. K. Balls, Bureau of Agricultural and Engineering Chemistry, Washington, D C. Secretary.

Balls, Bureau of Agricultural and Engineering Chemistry, Washington, D. C., Secretary.
American Surgical Association, New Orleans, Apr. 68. Dr. Charles G. Minter, 319 Longwood Ave., Boston, Secretary.
Arkansas Medical Society, Hot Springs National Park, Apr. 27-29. Dr. W. R. Brooksher, 602 Gartison Ave., Fort Smith, Secretary.
Association of American Physicians, Atlantic City, May 5.6 Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
California Medical Association, Del Monte, May 4.7. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.
Federation of American Societies for Experimental Biology, Boston, March 31-April 4. Dr. D. R. Hooker, 19 West Chase, St., Baltimore, Secretary.

March 31-April 4. Dr. D. R. Hooker, 19 West Chase, St. Baltimore, Secretary.

Florida Medical Association, Palm Beach, Apr. 1315 Dr. Shiler Richardson, 111 West Adams St., Jacksonville, Secretary, Georgia, Midical Association of, Augusta, Apr. 28 May 1. Dr. E. D. Shanks, 478 Peachtree St. N. E., Atlanta, Secretary, Illinois State Medical Society, Springfield, May 19 21. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary, Illinois State Medical Society, Des Monies, Apr. 15 17. Dr. Robert L. Parker, 3510 Sixth Ane., Des Monies, Apr. 15 17. Dr. Robert L. Parker, 3510 Sixth Ane., Des Monies, Secretary
Kansas Medical Society, Wichita, May 11 14 Mr. C. G. Munns, 112 West Sreth St., Topeka, Executive Secretary.

Louisiana State Medical Society, New Orleans, Apr. 27 29. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary
Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 28 30. Dr. Richard T. Shackelford, 1211 Cathedral St., Baltimore, Apr. 28 30. Dr. Richard T. Shackelford, 1211 Cathedral St., Baltimore, Apr. 28 30. Holt, 25 Shattuck St., Boston, Secretary.

Mississippi State Medical Association, Jackson, May 12 14. Dr. T. M. Dye, P. O. Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Jackson, May 12 14. Dr. T. M. Dye, P. O. Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Nunsas City, Apr. 27 29. Mr. E. H. Bartelsmeyer, 634 North Grand Blid, St. Louis, Executive Secretary.

Nebraska State Medical Association, Philadelphia, May 6.9. Dr. Charles J. Haffield, 1790 Broadway, New York, Secretary.

New Hampshire Medical Society, Manchester, May 12 13. Carliton R. Metcalf, S. South State St., Concord, Secretary.

New Hampshire Medical Society, Manchester, May 12 13. Carliton Revised, Medical Society of the State of, New York, Apr. 27 30. Dr. Peter Irving, 292 Madison Are, New York, Secretary.

New York, Medical Society of the State of, Chirlotte, May 11 13. North Carolina, Medical Society of the State of, Chirlotte, May 11 13. North Carolina, Medical Society

May 18. Miss Mary B. Krkbride, New Scotland Ave, Allany, Secretary.

North Carolina, Medical Society of the State of, Chirlotte, May 11 13.

Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Jamestonia, May 18 20.

L. W. Larson, 221 Fifth St. Bismarck, Secretary.

L. W. Larson, 221 Fifth St. Bismarck, Secretary.

Ohio State Medical Association, Columbus, Apr 29 May 1. Mr. R. H.

Official State St. Columbus, Evecutive Secretary.

Oklahoma State Medical Association, Tulen, Apr. 29 May 1. Mr. R. H.

Graham, 210 Plaza Court Bldg, Oklahoma City, Executive Secretary.

Pacific Coast Oto-Ophthalmological Society, Portland, Ore, May 11 14.

Dr. C. Allen Dickey, 450 Sutter St., San Francisco, Secretary.

South Carolina Medical Association, Myrile Beach, May 19 21. Dr.

Julian P. Price, 105 West Cheves St. Florence, Secretary.

Clarence E. Sherwood, 1073/ Exan Avenue South, Madicon, Secretary.

Clarence E. Sherwood, 1073/ Exan Avenue South, Madicon, Secretary.

Shoulders, 706 Church St., Nashville, Secretary.

Tevas, State Medical Association, Migribis, Apr. 14 16. Dr. H. H.

Taylor, 1404 West El Paso St., Fort Worth, Secretary.

# CENTRAL SOCIETY FOR CLINICAL RESEARCH

Fourteenth Annual Meeting, Held in Chicago, Nov. 7 and 8, 1941

The President, Dr. LAWRENCE D. THOMPSON, St. Louis, in the Chair

(Continued from page 1004)

### Nutritional Macrocytic Hyperchromic Anemia

Drs. Carl V. Moore and Richard Vilter, Virginia Minnich, M.S., and Dr. Tom D. Spies, St. Louis and Cincinnati: Ten patients with severe degrees of macrocytic hyperchromic anemia and with free hydrochloric acid in the gastric juice have been studied in the Nutrition Clinic at the Hillman Hospital during the summers of 1940 and 1941. In each instance there was a decided shift to younger forms of erythroid elements in the bone marrow, with a striking increase of megaloblasts. All the patients had diets grossly deficient in animal protein, and all but 1 either had or had had clinical manifestations of pellagra. Diarrhea was present in 8. Two had the clinical manifestations of nontropical sprue, 1 was found to have a beef tapeworm and 5 were relieved of their diarrhea when nicotinic acid was given. Eight of the 10 patients were male.

Intrinsic factor was shown to be present in 3 patients. Six responded submaximally when 250 Gm. of raw beef muscle was added to the diet. The meat, however, proved irritating and accentuated the diarrhea in each instance. Five patients were given a diet known to be deficient in animal protein and the B complex. After a control period of one week the crystalline members of the B complex were given both orally and parenterally. There was no change in the reticulocytes, no increase in red cells and no detectable alteration of the bone marrow. An 80 per cent alcoholic extract of beef muscle known to contain extrinsic factor was then given daily, and each patient responded with a reticulocyte rise and at least a slight erythrocyte increase. In several cases this period was followed by one in which the same quantity of beef muscle extract incubated with 100 cc. of normal human gastric juice was given daily; secondary reticu-locyte responses were obtained. The parenteral administration of 4 to 10 U.S. P. units of highly purified liver extract given daily after the periods of observation just described produced in 9 cases a significant increase in reticulocytes and an accelerated red cell regeneration. In the remaining case the response had already been maximal.

These observations are interpreted as indicating that (1) macrocytic hyperchromic anemia without achlorhydria occurs not infrequently in regions in the Southern states where pellagra is endemic and (2) the anemia is produced both by a dietary deficiency of extrinsic factor and by poor absorption from the intestinal tract.

### DISCUSSION

Dr. Charles A. Doan, Columbus, Ohio: I should like to ask Dr. Moore if splenomegaly occurred in any of the cases studied.

Dr. Frank H. Bethell, Ann Arbor, Mich.: Were tests of hepatic function done in any of these cases?

DR. S. M. GOLDHAMER, Ann Arbor, Mich.: Four years ago in Atlantic City Dr. Wintrobe gave a paper in which he proposed the theory that yeast is a substance which is similar to the erythrocyte material factor that is present in the liver. I think it has been subsequently shown that absence of the extrinsic factor could produce a similar picture. The extrinsic factor was important not only as to quality but as to quantity. Certain proteins could be administered and would give a response, while others could be administered without any response.

DR. CARL V. Moore, St. Louis: Splenomegaly was not present in any case. Tests of hepatic function were not performed. In our earlier experiments we used beef muscle rather than brewers' yeast in order to avoid the effect which Dr. Wintrobe noted. In no case have we obtained a reticulocyte response to a daily dose of 200 Gm. of beef muscle when the administration was made to a patient with true addisonian pernicious anemia. Dr. Goldhamer made reference to the fact that certain proteins apparently possess extrinsic factor activity. The 80 per cent alcoholic extract of beef muscle used in the later experiments was practically protein free.

### Clot Retraction Time in Thrombophlebitis and Pulmonary Embolism

DRS. JOHN S. HIRSCHBOECK and WILLIAM L. COFFEY JR., Milwaukee: The clot retraction time, which is the measured interval between the complete formation of the clot and the beginning of its separation from the bottom or the sides of the test tube, was found to be shorter than ten minutes in 9 of 10 consecutive cases of pulmonary embolism. The clot retraction time in normal persons is usually between twenty-five and thirty-five minutes. Patients with thrombophlebitis frequently have a clot retraction time between ten and twenty minutes, but pulmonary embolism did not occur in these patients unless the . time became shorter than eight minutes. The clot retraction time is short when the blood sedimentation rate is rapid and the volume of packed erythrocytes in the hematocrit is below normal. A rapid retraction time is most likely the result of an increase in both blood platelets and fibrin together with a lower than normal concentration of erythrocytes in the clot. The administration of heparin in amounts as low as 100 mg. a day has in some cases prolonged the clot retraction time to the normal range for as long as thirty-six hours. In other cases the effect has persisted for only twelve hours.

A rapid clot retraction time may explain why some thrombi, particularly those in postoperative phlebothrombosis, are dislodged so readily soon after formation to become pulmonary emboli. The retraction time becomes shorter than normal during the postoperative period, and if it falls to a level below ten minutes we consider the patient a possible candidate for pulmonary embolism and advise that he be treated prophylactically with small amounts of heparin until the clot retraction time is normal.

### DISCUSSION

Dr. Nelson W. Barker, Rochester, Minn.: I should like to ask Dr. Hirschboeck if the clot retraction time remains fairly constant in the patient who has had postoperative thrombosis or pulmonary embolism. I should also like to ask whether he has measured the clot retraction time after operation in a large series of patients and has been able to predict the occurrence of thrombosis and embolism by means of this test.

DR. H. T. RICKETTS, Chicago: I should like to raise the question whether the mere fact that embolism had occurred might have influenced the clot retraction time. Are you able to produce thrombosis artificially in animals and thus lower the retraction time?

Dr. John S. Hirschboeck, Milwaukee: In a normal person the clot retraction time, determined several times a week over an extended period, showed little fluctuation. Patients who have manifest thrombophlebitis and who have had episodes of pulmonary embolism may show considerable variations in the retraction time until their final recovery. The effect of heparin on clot retraction as well as on coagulation varies with individuals. Some require more heparin than others. I do not believe that the shortening of the clot retraction time is due to the pulmonary embolism itself, because in 1 case I found it practically as short before the embolism occurred as I did a few hours afterward.

# The Use of Pectin Solution as a Blood Substitute, with Special Emphasis on Plasmapheresis Studies

DR. F. W. HARTMAN, VICTOR SCHELLING, DR. HENRY N. HARKINS, BROCK BRUSH and KENNETH WARREN, Detroit: The need for blood substitutes in the present national emergency is manifest. The limitations of whole blood, plasma, serum and acacia are well known. Blood elements are expensive and except in dried form lack preservability. Acacia, on the other hand, combines the disadvantages of forming extensive deposits in the liver with those of antigenic properties. The experimental use of pectin solution as a blood substitute in shock has been made in a series of 80 dogs after extensive bleeding, biliary peritonitis and plasmapheresis. In many of these experiments the blood pressure was maintained and hemoconcentration was prevented for periods of eight hours or more, depending on the dosage. Plasmapheresis was performed with reduction of the plasma protein concentration to as low as 1 per cent. Clinical use has been made of pectin solution in 50 cases, principally as a measure to prevent shock in operative procedures of the type in which blood transfusion had previously been used.

responses to pectin compared favorably in some instances with those to blood.

Dry powdered pectin is wetted overnight with 95 per cent alcohol. The alcohol is then completely decanted, and cold calcium and magnesium free Ringer's solution is added in the proper amount to make a 0.75 per cent solution of pectin. The solution is stirred vigorously and left standing for three hours. Four cc. of a buffered phosphate solution of  $p_{\rm H}$  6.0 (prepared from 285 Gm. of monosodium acid phospate and 1,000 cc. of water) and enough 2.5 normal sodium hydroxide are added to each 1,000 cc. of pectin solution to bring the  $p_{\rm H}$  to 7.0. This brings the original  $p_{\rm H}$  of about 3.0 to 5.5.

### DISCUSSION

Dr. W. B. Cooksey, Detroit: In the slides which Dr. Harkins showed after the use of pectin alone, the response in the blood pressure reading was a little slower than is usually seen—two hours. That is certainly slower than is obtained with adequate amounts of plasma. I wonder whether he would amplify this problem and state what the rest of the series showed. I know that Dr. Hartman and his associates have made a study of the toxicity of pectin, and it seems that it is not toxic. However, one must remember that it took physicians a long time to realize how dangerous acacia may be. It seems to me that one should be rather conservative regarding pectin at this time.

Dr. E. S. Gordon, Madison, Wis.: I should like to ask whether the authors have made any observations regarding the ultimate fate of the pectin.

Dr. Henry H. Harkins, Detroit: I will agree with Dr. Cooksey that in the slide referred to the blood pressure showed a slow response to pectin. In some of our other cases this slow response occurred also, but we do have cases in which there was a more rapid response. I can comment on Dr. Cooksey's second remark regarding the nontoxicity of pectin along with Dr. Gordon's question. Dr. Hartman performed experiments on the toxicity of pectin which can be summarized experiments on the toxicity of pectin which can be summarized esomewhat as follows: 1. Pectin does not seem to be permanently deposited in the liver as is acacia. 2. Pectin is temporarily deposited in the liver, but in dogs killed after three or four days there is no evidence of permanent pectin storage. 3. Pectin seems to be excreted in the urine, and its excretion is more or less quantitatively complete within thirty-six to forty-eight hours.

# Sputum Studies in Pneumonia: The Selection of Therapy

DRS. ARTHUR W. FRISCH and ALVIN E. PRICE, Detroit: In a group of 293 cases of roentgenographically proved types I, II, IV, V, VII and VIII pneumonia the specific therapy was selected for each patient by means of sputum examinations. Supportive therapy, or an average dose of 35,000 units of serum. was given to 123 patients whose sputum contained 10 or less pneumococci per oil immersion field. The bacteremic incidence in this group was 11 per cent, and the mortality was 0 per cent. Sulfapyridine or sulfathiazole was given to 130 patients whose sputum contained from 11 to 50 pneumococci per field. The bacteremic incidence in this group was 37 per cent and the mortality rate 6 per cent. Combined chemotherapy and serotherapy was reserved for 24 patients whose sputum contained more than 50 pneumococci per field. The bacteremic incidence in this group was 80 per cent and the mortality rate 54 per cent. In a group of 16 cases miscellaneous therapy was switched from one form to another. The examination of Wright stained smears of rusty sputum proved to be a satisfactory method of differentiating the severe from the mild pneumococcic pneumonia.

### DISCUSSION

DR. M. A. BLANKENHORN, Cincinnati: I should like to ask Dr. Frisch if he has made any observations on the presence of antigenic substance or immune body in the circulating blood as compared to its presence in the sputum. Will Dr. Frisch also state what it is that determines the rusty or bloody nature of sputum? What is there peculiar to his selected patients that makes them respond with rusty sputum? I am certain that Dr. Frisch's advice is extremely helpful in the selection of patients for therapy. I am wondering whether by more careful scrutiny of the patients with rusty sputum information perhaps may not be obtained that would be helpful in the treatment of patients who do not have rusty sputum.

DR. OSWALD H. ROBERTSON, Chicago: Since the observations of Drs. Frisch and Price on human pneumonic sputum have gone so far beyond those made by any one else, I can discuss them only with respect to certain analogous observations my associates and I have made in experimental canine pneumonia. We have observed that the severity of the pulmonary infection in the early stages of the disease is reflected in the number of pneumococci present in the bronchial exudate. In the dog with a fulminating infection, great numbers of pneumococci are present and little evidence of phagocytosis is seen. On the other hand, the bronchial exudate of the animal with a well localized lesion in a single lobe exhibits relatively few micro-organisms, and these are all within the phagocytic cells. Thus our observations of experimentally infected dogs would coincide for the first two or three days with those of Dr. Frisch on human beings. However, during the later stages of the canine disease the number of pneumococci in the bronchial exudate tends to diminish substantially, even though the disease may go on to a fatal termination. An exception occurs when new lobes are progressively involved. When following the evolution of individual lobar lesions we have found that the most fluid and pneumococcus rich exudate occurs early in the development of the lesion. After two or three days the exudate becomes thicker and the number of micro-organisms diminishes, probably chiefly as a result of phagocytosis. I should like to ask Dr. Frisch if, in the cases in which he observed many pneumococci late in the course of the disease, spread of the pneumonic process to other lobes was occurring.

Dr. ARTHUR W. FRISCH, Detroit: I believe Dr. Robertson has answered Dr. Blankenhorn's question. We use rusty sputum because we are certain that it comes from the lung. Observations similar to those on the sputum have been made on serial smears of the lungs at autopsy. However, in some cases smears from the lungs have failed to reveal the presence of pneumococci, which indicates that the focus is elsewhere in the body. With regard to the relationship of clumping of pneumococci in the sputum and other known immune reactions, we have preliminary data suggesting that this phenomenon is more closely related to the presence of agglutinins in the blood than to the Francis skin test. We are now studying approximately 500 cases and are attempting to correlate the clinical course with the data on the sputum. I did not include type III pneumonia because the outcome in this type is determined by the amount of specific soluble substance produced by the pneumococci and not by the number of pneumococci present in the sputum.

# The Effect of Temperature on the Transmission of Lymphocytic Choriomeningitis Virus by Mosquitoes

ALBERT MILZER, Ph.D., Chicago: Transmission of lymphocytic choriomeningitis could be effected by Aedes aegypti only when mosquitoes of this type were incubated at temperatures ranging between 26 and 34 C.; no virus was detected in mosquitoes kept at 25 C. and lower or at 37 C. Best results in transmission were obtained at 28, 30 and 32 C. and occurred at intervals varying from seven to thirty-eight days following the infective blood meal. These results are not directly comparable to those of Coggeshall because he failed to indicate incubation temperatures in his transmission experiments. The results obtained in the present studies justify repetition of transmission experiments with certain virus diseases suspected of being insect borne, such as poliomyesitis and St. Louis encephalitis, with insect incubation temperatures more carefully controlled than in the past.

### DISCUSSION

Dr. A. W. Frisch, Detroit: Did you find any evidence of multiplication of the virus in the mosquito?

Dr. Carl G. Harford, St. Louis: I think this is a timely paper, especially since investigators from the west coast have reported obtaining the viruses of St. Louis encephalitis and horse encephalitis from mosquitoes caught in their natural environment.

ALBERT MILZER, Ph.D., Chicago: No attempt was made to determine whether the virus multiplied in the mosquitoes.

(To be continued)

### Current Medical Literature

### **AMERICAN**

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of rectioncais are available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Surgery, New York 55:1-188 (Jan.) 1942. Partial Index

*Pilonidal Sinuses: Review of Literature and Report of 350 Cases. H. P. Kooistra, Grand Rapids, Mich.—p. 3. *Mortality and Morbidity in Surgery of Thyroid. C. G. Heyd, New

York.-p. 18. Adrenal Apoplexy. M. J. Thorstad, Detroit.-p. 44.

Maintaining Reduction in Oblique Fractures of Long Bones. J. P. Stump, M. C. Krepela and S. F. Stockhammer, New York.—p. 49. Diagnosis of Low Back Pain of Orthopedic Origin: Analysis of Sixty-Two Cases. E. A. Brav, Philadelphia.—p. 57.
Malignant Synoviona of Knee Joint. C. H. Snyder, Grand Rapids,

Mich .- p. 67.

Use of Pentothal Sodium for Induction of Anesthesia in Thyrotoxicosis. C. II. Long, A. Mickal and A. Ochsner, New Orleans.—p. 71.

C. H. Long, A. Mickal and A. Ochsher, New Orleans.—p. 71.
Delayed Metastases in Cancer of Breast. A. J. Chilko and H. Quastler,
New Rochelle, N. Y.—p. 75.

Hypoxia—Hazard of Operating Room. D. H. Batten, Brooklyn.—p. 83.
Melanoblastoma, with Special Reference to Metastatic Dissemination.
H. H. Friedman and M. Lederer, Brooklyn.—p. 88.

One Hundred and One Cases of Infections of Face and Neck Following Oral Pathology. G. R. O'Brien, Brooklyn, and L. R. Rubin, New

Oral Pathology. York .- p. 102. Diagnosis and Localization of Intra-Abdominal Abscesses by Roent-genologic Methods. W. C. Beck, J. D. Koucky and M. Baker, Chicago.

Experiences with Spool Cotton as Suture Material. P. Thorek, Chicago.

p. 118 Treatment and Cure of Seventy-Six Cases of Hydrocele by One Twin

Injection of Lithium Salicylate and Quinine Hydrochloride and Urethane. J. C. Diamond, Fort William, Ont., Canada.—p. 121.

Economic Considerations of Cosmetic Surgery. R. O. Renie, New York.

Pilonidal Sinus.-Kooistra reviews the literature, data from serial sections of 40 human embryos and 350 cases of pilonidal sinus. Sections of excised tissue were examined microscopically, and a questionnaire was sent to the 202 treated patients to determine the end result. The term pilonidal sinus or cyst is a misnomer, as only about half of the lesions contain hair. Pilonidal sinus is considerably more common than is generally supposed. The 350 lesions were encountered among 313,285 patients admitted to the University Hospital during fourteen years. Seventeen of the lesions were recurrences. The lesion is usually found in patients aged 20 to 25. Of the 350 lesions 258 occurred in males. Symptoms of the lesions developed earlier in the female than in the male patient; 40 per cent of the female patients were less than 20 years of age, as compared to 19 per cent of the male patients. This previously unreported fact apparently is of etiologic significance. Since the human female reaches puberty earlier, it appears that these lesions are activated by the sex hormones. The disease is restricted to the Caucasian race. A questionnaire study of the family history of 100 representative patients revealed a hereditary factor in 10 per cent. Evidence indicates an anlage for this defect in the earliest stages of embryonic development. In 32 per cent of the patients there was a definite history of trauma, but in only 14 per cent did it occur within a month of the onset of symptoms. A study of associated and incidental diseases revealed that 4 patients had mental disorders, 6 skeletal congenital defects, 4 inguinal hernias, 4 diabetes, 6 pulmonary tuberculosis, I osseous tuberculosis, 3 syphilis, 7 associated hypertension, 3 nephritis, 3 arthritis and 2 furunculosis. Pain (in \$4 per cent) and discharge (in 78 per cent) due to infection were the predominating symptoms. Recurrent abscesses and draining midline sinuses in the sacrococcygeal region were observed often. Of the 202 patients treated at the University Hospital, 117 had had previous operative procedures. The pathologic picture is that of a dermal sinus with hair in about half the cases. All the sections showed evidence of acute or chronic inflammation. Treatment remains an individualized problem. Incision and drainage are indicated for any acute manifestation. The use of Carnoy's solution after incision has merit in selected cases. Excision with primary closure is advisable for the uninfected and the less extensive lesion. Excision and open packing are indicated for the more severe and the recurrent lesion. A prolonged healing time and recurrence are common problems of treatment. Replies to a questionnaire received from 89 patients whose lesion was excised reported "permanent cure" in 74 per cent. Data on patients in whom dye was used preoperatively favor its use to delineate the lesion.

Surgery of Thyroid.-Heyd states that whatever the ctiologic factor or factors might be in hyperthyroidism the disease is not a single condition. It may manifest itself in a variety of clinical pictures with different pathologic entities. The indications for surgical intervention depend on the clinical manifestations, pressure symptoms and malignant changes. Overdosage and continuous administration of iodine preparations are to be discouraged. Iodine does not cure goiter; it aids preoperative treatment, controls symptoms and is of great value in crisis. The incidence of cancer of the thyroid is fairly constant, and if every patient with a nodular goiter is considered as a candidate for surgical intervention the incidence may be decreased. Good results are the rule in cardiac disabilities that are the result of toxic adenomas. In exophthalmic goiter surgical intervention is only one phase of treatment; a proper medical regimen and control of symptoms for not less than a year postoperatively are equally important. The basal metabolic rate is but one sign of hyperthyroidism, and it should never be overemphasized. Vocal and respiratory difficulties that follow thyroidectomy are still a pressing problem to even the most expert surgeon.

Hypoxia.—Batten points out that most instances of hypoxia that occur in the operating room are the result of nitrous oxide anesthesia, which is the lightest anesthesia unless metabolic depressant drugs are used as adjuvants. The plane of anesthesia may be deepened through the diminution of oxygen the patient is permitted to breathe. When the concentration of oxygen in the inspired atmosphere is permitted to drop to less than 20 per cent the procedure should be termed asphyxia. When more relaxation is demanded than can be obtained by an 80 to 20 per cent nitrous oxide-oxygen mixture, the nitrous oxide should not be increased at the expense of oxygen but some more potent agent should be employed. Also hypoxia in the operating room at times arises from the injudicious use of pain relieving drugs, obstruction to a patent airway, deep Trendelenburg position, sharp angulation of the table in operations on the kidney, use of the gallbladder rest, persistent laryngospasm and spinal anesthesia, which decreases the oxygen in alveolar, arterial and venous systems. The author believes that attention to the following six factors will diminish the number of anesthetic accidents: (1) the avoidance of the promiscuous use of respiratory depressant drugs, (2) the avoidance of giving nitrous oxide in a concentration of less than 20 per cent of oxygen, (3) the disturbance of the patient's physiologic condition as little as possible, (4) the protection of the patient on his return to bed against aspiration of mucus and vomitus and from asphyxia from a relaxed tongue, (5) the administration of oxygen to any patient exhibiting signs of hypoxia in the operating room and (6) the avoidance of routine spinal anesthesia.

### Arkansas Medical Society Journal, Fort Smith 38:139-158 (Dec.) 1941

Résume of Pever Therapy in Management of Syphilis. K. Phillips, Miami, Fla.-p. 139.

Relief of Pain in Apical Lung Tumor by Resection of Cervical Sympathetic Ganglions on Involved Side. M. B. Bowman, Hot Springs National Park .- p. 144.

### 38:159-182 (Jan.) 1942

Nature of Thyroid Disorders. J. H. Hayes, Little Rock.-p. 159. Hypertension. C. H. Finney, Fort Snelling, Minn.-p. 163. "Our American Heritage." J. L. McClellan, Camden.-p. 165.

### Journal of Experimental Medicine, New York 75:1-134 (Jan.) 1942

Periodic Examination of Sewage for Virus of Poliomyelitis. J. D. Trask and J. R. Paul, with technical assistance of J. T. Riordan, New Haven, Conn .-- p. 1.

Enduring Partnership of Neoplastic Virus and Carcinoma Cells: Continued Increase of Virus in V2 Carcinoma During Propagation in

Virus Immune Hosts. J. G. Kidd, New York.—p. 7.
Antigenic Relationship of Viruses of Meningopneumonitis and Lymphogranuloma Venereum. M. D. Eaton, W. P. Martin and M. Dorthy Beck, Berkeley, Calif .- p. 21.

Further Study of Cross Reaction Between Specific Polysaccharides of Types III and VIII Pneumococci in Horse Antiserums. M. Heidelberger, E. A. Kabat and M. Mayer, New York .- p. 35.

Quantitative Determination of Influenza Virus and Antibodies by Means of Red Cell Agglutination. G. K. Hirst, New York,—p. 49.
Demonstration of Agglutinins for Bartonella Bacilliformis. C. Howe,

Boston .- p. 65.

Effect of Sulfapyridine on Development of Immunity to Pneumococcus in Rabbits. E. C. Curnen and C. M. MacLeod, New York .- p. 77.

Comparative Diabetogenic Action of Hypophysis from Various Animals, B. A. Houssay, F. S. Smyth, V. G. Foglia and A. B. Houssay, Buenos Aires, Argentina .- p. 93.

*Natural History of Experimental Poliomyelitis Infection: I. Studies on Centrifugal Spread and Elimination of Virus in Intrasciatically Inoculated Rhesus Monkeys. A. B. Sabin and R. Ward, Cincinnati.-

Comparison of Erythrocyte Sedimentation Rates and Electrophoretic Patterns of Normal and Pathologic Human Blood. T. Shedlovsky and J. Scudder, New York .- p. 119.

Studies Concerning Site of Renin Formation in Kidney: I. Absence of Renin in Aglomerular Kidney of Midshipman Fish. M. Friedman and A. Kaplan, San Francisco .- p. 127.

Natural History of Experimental Poliomyelitis Infection.—Sabin and Ward studied the spread of poliomyelitis in the central and peripheral nervous systems of 8 rhesus monkeys. They injected the M. V. virus into the sciatic nerve, collected nasal secretions on plugs of absorbent cotton every twenty-four hours during life, pooled the secretions collected from several monkeys and tested them for the virus. Tissues of animals dead from the disease were studied to ascertain the extent of the centrifugal spread of the virus. The incubation period was relatively short: paralysis was observed first on the third day in 3 monkeys, on the fourth day in 4 and on the fifth day in 1. The first rise in temperature occurred on the same day as the paralysis in 6 monkeys and on the day preceding the paralysis in 2. The appearance of paralysis first in the inoculated leg of 6 monkeys and in both legs of 2 is in accord with the usual course of the disease. The disease was permitted to run its full course to allow the greatest possible spread of the virus. The virus was not demonstrable in the nasal secretions of the infected rhesus monkeys during any stage of the preparalytic or the paralytic phase of the disease. Sabin's and Ward's observations indicate that by the time the terminal phase of the disease is reached the virus had not spread sufficiently either in the central nervous system, to involve the offactory bulbs and the adjacent nasal mucosa, or peripherally, to affect the collateral sympathetic ganglions or the nerve cells of the parasympathetic system, the salivary glands and the pharyngeal wall about the tonsils. The negative results with the tonsils offer confirmatory evidence for the absence of the virus in the tissue spaces of the nasal mucosa and other regions whose lymphatics drain into these nodes. The finding of virus in the spinal cord of each monkey lends weight to the negative results with other tissues. Under certain circumstances (different from those of the present study) the presence of virus in these ganglions and tissues may be used as an index to the port of entry of the virus.

### Journal-Lancet, Minneapolis 62:1-32 (Jan.) 1942

Management of the Breech. W. A. Coventry, Duluth, Minn.-p. 1.

Nianagement of the Brecca. H. A. Coventy, Brand, Standard Vitamins. E. H. Ryncarson, Rochester, Minn.—p. 4.

Tuberculosis Control Among College Students: Theoretical and Applied,
C. E. Lyght, Northfield, Minn.—p. 7.

The American Indian's Contribution: Food and Drugs. H. A. Burns,

Ah-Gwah-Ching, Minn .- p. 12.

The Selective Service System and the Practice of Medicine. R. A. Bier, Washington, D. C.-p. 15.

Common Use of Female Sex Hormones. J. L. Conrad, Jamestown, N. D.-p. 18.

A Student Health Auxiliary. W. H. York, Princeton, N. J.-p. 20.

### Minnesota Medicine, St. Paul 25:1-80 (Jan.) 1942

Present Status of Hormone Therapy. M. Hoffman, St. Paul,-p. 19. *Ten Cases of Paralysis Agitans Treated with Vitamin Bo. Charlotte L.

Ten Cases of Paralysis Agitans Treated with Vitamin Bo. Charlotte L. Meller, Minneapolis.—p. 22, Present Day Treatment of Pneumonia. II. G. Wood, Rochester.—p. 24. Use of Chilled Blood, Blood Plasma and Serum. T. S. Seldon and J. T. Priestley, Rochester.—p. 28. Pharmacologic Shock Therapy at St. Peter. G. H. Freeman, A. S. Nissen and E. W. Miller, St. Peter.—p. 31. Hematology of Pernicious Anemia. C. Vandersluis, Bemidji.—p. 36. Tumors of Pituitary Gland. R. R. Cranmer, Minneapolis.—p. 38.

Pyridoxine for Paralysis Agitans .- Meller gave pyridoxine to 4 patients with postencephalitic and to 6 with idiopathic paralysis agitans. The patients were relief clients whose diets could have been deficient; they were given also brewers' yeast and cod liver oil tablets. Previous experience with these substances had no specific therapeutic effect. Pyridoxine was given daily in a dose of 50 mg., subcutaneously or intravenously, for ten days; then the dose was increased to 100 mg. for three or four days. The dose was then continued or decreased, depending on the patient's response. The patients responded promptly by improving to a degree beyond which even larger doses brought no benefit. After this improvement had been attained the patient was given 50 mg. subcutaneously on alternate days. As a partial control, 3 similar patients were treated with physiologic solution of sodium chloride; 1 thought that he felt better, but none showed any objective change. Only 1 of the 10 patients failed to respond in some measure. The improvement in the others consisted of a feeling of relaxation, decrease of spasticity and disappearance of pain and an increased feeling of well-being. Although no objective change in tremor was noticeable, the patients reported that they had better control of their muscles (the arms and legs moved with more assurance, and the tremor was not so annoying).

### Nebraska State Medical Journal, Lincoln 27:1-40 (Jan.) 1942

Priceless Heritage of Medical Freedom. E. H. Skinner, Kansas City,

Chemotherapy in Pneumonia, A. V. Stoesser, Minneapolis. p. 5, Management of Patients with Renal Calculi. C. C. Higgins, Cleveland.

⊸p. 10. *Pyogenic Infections of Hand: Lymphatic, Tendon Sheath and Fascial Space Infections. M. Grodinsky, Omaha.—p. 13.
Infections of Throat—Acute Septic Sore Throat. L. P. Coakley, Omaha.

-p. 18.

Pyogenic Infections.-Grodinsky states that of the three major types of pyogenic infections of the hand (lymphatic, fascial and tendon sheath) acute lymphatic infections are most dangerous to life but the least likely to lead to permanent disability. The main principle in their treatment is to avoid incision before the infection has become localized. Permanent disability from infections of the tendon sheath may be reduced to a minimum by early and adequate surgical treatment. Likewise in infections of the fascia early and proper surgical treatment should prevent permanent loss of function.

### Philippine Medical Association Journal, Manila 21:535-608 (Nov.) 1941

Highlights of Weekly Staff Clinical Conferences in 1940. J. Albert and

P. Ignacio, Manila.—p. 535.
Sulfathiazole in Treatment of Surgical Infections and Complications.
F. C. Guzman and E. Garcia, Manila.—p. 563.

### Southern Surgeon, Atlanta, Ga.

### 11:1-78 (Jan.) 1942

Minor Urologic Procedures of Value to General Practitioner. A. I. Folsom and H. A. O'Brien, Dallas, Texas.—p. 1.
Carcinoma of Rectum, Rectosigmoid and Sigmoid: Selection of Crees for One Stage Combined Abdominoperineal Resection. C. M. Majo and C. P. Schlieke, Rochester, Minn.—p. 14.
Intra-Abdominal Application of Sulfanilamide in Acute Perforative Appendicitis: Preliminary Report. M. B. Welhorn and K. F. Subblifield, Evansville, Ind.—p. 24.
Controlled Fractional Spinal Anesthesia. W. E. Lee, O. C. King and H. L. Farrell, Philadelphia.—p. 28.
Probing Common Duct Through T Tube Four Weeks Postoperatively.
J. P. Barnes, Houston, Texas.—p. 35.
Use of Stropshire Technic in Watkins Chauta Operation for Uterine Prolapse. J. T. Moore, Houston, Texas.—p. 42.
Torsion of Appendix as Possible Causative Factor in Gangrengas Affect. dicitis. S. O. Moseley, Selma, Ala.—p. 47.

### FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Dermatology and Syphilis, London 53:333-364 (Dec.) 1941

Growth of Epithelium in Tegumentary Tissues: Part III. Healing of Cutaneous Wounds, Regeneration. H. Leslie-Roberts.—p. 333.
Organized Treatment for Scabies. G. H. Percival.—p. 346.
Human Necrobacillosis: Case. G. Bamber.—p. 351.

### Journal of Endocrinology, London 2:263-502 (Sept.) 1941. Partial Index

Effect of Testosterone on Responsiveness of Immature Gonad to Chorionic Gonadotropin. H. Selye.—p. 352. Curve of Elimination and Excretion of Chorionic Gonadotropin Derived

from Rate of Hormone Recovery and Antihormone Consumption.
B. Zondek, F. Sulman and J. Sklow.—p. 362.
Inunction of Sex Hormones on Skin. C. W. Emmens.—p. 368.

Precipitins in Serum of Rabbits Immunized Against Purified Serum Gonadotropin. M. van den Ende .- p. 403.

Hair Loss as Deficiency Test of Medullectomy in Rats. L. Stein and E. Wertheimer .- p. 418.

Effect of Estrogenic Stimulation on Human Prostate at Birth. E. P. Sharpey-Schafer and S. Zuckerman .- p. 431.

Precursors of Estrogens. C. W. Emmens .- p. 444.

Anterior Pituitary Gland and Protein Metabolism: Parts I, II and III.
D. P. Cuthbertson, T. A. Webster, F. C. Young and G. B. Shaw. -р. 459.

Quantitative Study of Effects of Implanting Tablets of Estrogens and Androgens in Rats. R. Deanesly and A. S. Parkes.—p. 487.

### Lancet, London

2:657-688 (Nov. 29)-1941

High Stillbirth and Neonatal Mortalities. D. Baird and J. F. B. Wyper .- p. 657.

*Relationship of Exanthematic and Endemic Typhus. G. M. Findlay. -p. 659.

Radiologic Visualization of Eustachian Tube. G. F. Rees-Jones and J. E. G. McGibbon.-p. 660.

*Brachial Neuritis Occurring in Epidemic Form. R. Wyburn-Mason, -р. 662.

Resistance of Influenza Virus to Drying and Its Demonstration on Dust, D. G. F. Edward .- p. 664.

Continuous Administration of Ethyl Chloride. U. M. Westell.-p. 666, Kondoléon Operation for Chronic Lymphedema. E. D. Telford and H. T. Simmons.-p. 667.

*Sulfapyridine in Filariasis: Further Experiences. K. V. Earle.—p. 667. Biatrial Trilocular Heart with Atresia of Mitral Valve. E. W. Walls, -p. 668.

Exanthematic and Endemic Typhus.-Findlay reports the accidental infection of 2 laboratory workers with endemic typhus during work with active endemic typhus rickettsias. The infection in 1 worker more than 40 was apparently modified because of the presence of some degree of immunity against exanthematic typhus in contrast to the other worker, who was 18. This unrehearsed human experiment, the author believes, bears out the contention that there is a close antigenic similarity between the rickettsias of exanthematic and endemic typhus.

Brachial Neuritis in Epidemic Form.-Wyburn-Mason discusses the occurrence of brachial neuritis in 42 patients within eight months. The patients were between 30 and 77 years of age. The epidemic began in the winter and persisted into the spring and the summer. The clinical features (pain, burning and tenderness in the region of the cords of the plexus and over the ulnar nerve, sensory changes and motor weakness) suggest that the anterior primary divisions of the spinal nerves from the third cervical to the fourth dorsal inclusive, in whole or in part, were involved. Usually the upper part of the plexus, and the skin segments served by the fifth and sixth cervical nerves, were affected; but careful examination also revealed sensory changes of a wider distribution. The tendon reflexes in the affected limb were usually increased or decreased. The severity of the disorder varied from patient to patient. The ultimate outlook is good, and the milder types of neuritis improve soon, but the more severe ones have so far been refractory to The similarity of the disorder in all the patients suggests that the condition is the result of an infection and that the site of the lesion is in the nerves at a point distal to the posterior primary divisions. The cause is not known, but

it seems to be a clinical entity, possibly the result of a heretofore undescribed infection appearing for the first time in this war. No patient frequented public air raid shelters.

Sulfapyridine in Filariasis.—Earle cites 3 further cases of lymphadenitis complicating filariasis successfully treated with sulfapyridine. The striking beneficial effect of sulfapyridine on the lymphadenitis probably indicates that the complication is due to secondary streptococcic infection rather than to the filariasis itself. The number of microfilariae in the blood stream is not reduced by the drug.

### Quarterly Journal of Medicine, Oxford 10:283-334 (Oct.) 1941

*Epidemic Myositis, with Neuritis, Erythema and Meningeal Symptoms. D. Williams .- p. 283.

*Simmonds' Disease or Panhypopituitarism (Anterior): Its Clinical Diagnosis by Combined Use of Two Objective Tests. R. Fraser and Patricia H. Smith.—p. 297.

Epidemic Myositis .- Williams reports the occurrence in 5 men of the Royal Air Force in the early summer of 1940 of a previously undescribed syndrome: an acute febrile illness with symptoms and signs of myositis and meningitis. The syndrome occurred at one station only and followed inoculation with tetanus toxoid and T. A. B. vaccine. The syndrome did not develop in thousands of other recruits similarly inoculated. In addition to the syndrome, 4 of the 5 patients had involvement of the peripheral nerves, 3 had an erythematous rash and 3 had visual disturbances. All the patients recovered completely, and no causal agent could be isolated. It is suggested that the syndrome was probably caused by a virus which may have been activated by the T. A. B. inoculations. The illness began within forty-eight hours of the inoculation and lasted for less than a week. In 1 patient it was complicated by acute gastroenteritis and in another 1 by a pleural effusion. The sterile cerebrospinal fluid of 3 men contained an excess of lymphocytes and polymorphonuclear leukocytes. All other investigations gave negative results.

Simmonds' Disease or Panhypopituitarism.—Fraser and Smith used the insulin tolerance test and a urinary 17-ketosteroid assay for 10 patients to distinguish Simmonds' disease, or panhypopituitarism, from anorexia nervosa and myxedema. The tests furnish a reliable and objective method for diagnosing Simmonds' disease during life. The tests were applied to 15 other patients with allied syndromes or less definite pituitary defects: primary myxedema and anorexia nervosa. In the 10 patients with panhypopituitarism the insulin tolerance test gave a characteristic curve; after a normal initial fall of blood sugar there was a failure or a delay in the usual spontaneous return. The response to epinephrine was usually abnormally slight but varied in accordance with the degree of hypoglycemic unresponsiveness (insulin hypersensitivity), that is between 80 and 47 per cent. To a certain extent it appeared that the degree of failure in the return of the blood sugar corresponded to the clinical degree of pituitary failure. Similar abnormal insulin tolerance curves may be found in hyperinsulinism and Addison's disease and possibly with severe hepatic disease or malnutrition. The urinary 17-ketosteroid assay, with one exception, was zero (less than 0.5 mg. in twenty-four hours). At least two assays were done for each patient. The only universal symptoms of the 10 patients with panhypopituitarism were hypogonadism and asthenia; the only universal signs, other than those of hypogonadism, were some cutaneous atrophy and loss of most or all of the axillary hair. The basal metabolic rate was low but the serum cholesterol often high. Four of the 8 patients with anorexia nervosa gave a normal reaction to the insulin tolerance test and 3 one similar to that found in panhypopituitarism. and in the 3 patients with primary myxedema the test showed a slow initial fall or insulin resistance. The 17-ketosteroid assays on 4 of the patients with anorexia nervosa gave results ranging from 2.7 to 14.7 mg. in twenty-four hours. These 4 patients were those with a reaction to the insulin tolerance test indistinguishable from that seen in panhypopituitarism. assays of the patients with primary myxedema varied from zero to 1.7 mg. It is concluded that by the combined use of the two tests panhypopituitarism (anterior) producing even fairly mild symptoms can be distinguished from allied syndromes.

### Arch. Internat. de Pharmacodyn. et de Thérap., Ghent 66:243-378 (Sept. 30) 1941. Partial Index

Experimental Study on Action of Hemostatics on Bleeding Parous States Following Administration of Sodium Polyanetholsulfonate. Derouaux,--D. 245.

Experimental Studies on Mechanism of Adrenalinochloroformic Syncope. L. Dautrebande and R. Charlier .- p. 257.

Influences of Aneurin and of Acetylaneurin on Action of Different Pharmacologic Substances on Uterus and Intestine.

Supposed "All or None Law of Anesthesia." H. Winterstein and H. Derman,—p. 293.

Contribution to Study of Hypnotics with Paralyzing Effect on Thalamic Centers. J. La Barre and G. Kettenmeyer .- p. 305.

*Action of Toad Venom on Bleeding Time. G. Derouaux .- p. 325.

Action of Toad Venom on Bleeding Time.-Derouaux points out that extract of the parotid gland of the toad has been recommended for treatment of hemorrhage. The presence of epinephrine in the preparation seems to justify this. Having verified the favorable influence of the medulloadrenal hormone on the bleeding time, the author decided to submit to experimental control the action on the bleeding time of bufotalin, busotenin and epinephrine, administered in the form of a total extract. He found that, in spite of the presence of epinephrine (extremely small quantity), besides the bufotalin and bufotenin, the total extract of the parotid gland of the toad (Bufo bufo) does not exert any hemostatic action in rabbits. On the contrary, in relatively large doses (1 cc. of a 1:30 solution) toad venom strongly impedes the mechanism of spontaneous arrest of hemorrhage.

### Schweiz. Ztschr. f. Pathol. u. Bakteriol., Basel 4:321-410 (No. 5) 1941. Partial Index

Role of Calcium in Microbic Dissociation. J. Bordet and P. Bordet. -р. 321.

Question of Organ Specificity of Renal Extracts. H. Bloch.—p. 332. *Modified Typhoid, Paratyphoid, Tetanus Vaccine. C. Hallauer and R. Regamey .- p. 350.

Mode of Extrusion of Schistosome Ova from Blood Vessels into Tissues. E. Kohlschütter and E. Koppisch.—p. 357. Properties of Brain Antigens and Their Antiserums. J. H. Lewis.

-p. 370.

Immunization Experiments with Steroids. H. Mooser and R. K. Grili-

chess.—p. 375.
Unfavorable Effect of Specific Antiserum on Active Immunization of Guinea Pigs. W. Mutsaars and J. Robert.—p. 381.
Etiology of Pustulosis Vacciniformis Acuta. S. Seidenberg.—p. 398.

New Modified Typhoid-Paratyphoid-Tetanus Vaccine. -Hallauer and Regamey point out that Ramon's typhoid-paratyphoid-tetanus vaccine has the disadvantage of eliciting local and general reactions and of impairing the work capacity for one or two days. In the presence of allergy, vagotonia, rheumatism or tuberculosis it may produce complications. These disadvantages may be obviated by substituting, for the customary bacillary suspensions of typhoid-paratyphoid, endotoxoids that have been detoxified by solution of formaldehyde. The composition of 1 cc. of such a modified triple vaccine is as follows: 0.66 cc. of tetanus toxoid and 0.33 cc. of Salmonella endotoxoid (treated with solution of formaldehyde) corresponding to 1,600 millions of typhoid bacilli, 1,200 millions of paratyphoid B schottmüller bacilli, 600 millions of paratyphoid B Breslau bacilli and 600 millions of paratyphoid A bacilli. The efficacy of this vaccine was compared with that of Ramon's combination vaccine in guinea pigs and in human subjects. The modified vaccine was as effective against tetanus and Salmonella infections as Ramon's original vaccine. It is less toxic and causes milder reactions, yet the antibody titers of the persons vaccinated with it are as high as those of persons inoculated with Ramon's vaccine.

### Boletin de la Liga Contra el Cáncer, Havana 16:329-360 (Nov.) 1941. Partial Index

*Cancer of Prostate, Acid Phosphatase of Blood Serum and Castration. L. F. Ajamil.-p. 333.

Cancer of Prostate.-Reports in American literature and Ajamil's own observations suggest that acid phosphatase in blood serum is greatly increased in all cases of carcinoma of the prostate with metastasis to bone. The metastatic spread of the tumor can be surmised from the level of acid phosphatemia, even if the metastasis cannot be visualized by roentgen examina-

tion. The development of metastasis to bone in cancer of the prostate is stimulated by acid phosphatases in the blood serum, the increase or diminution of which is controlled by the testicular hormones. Effects of testicular hormones on the acid phosphatase of blood serum and the relation between acid phosphatase in the blood and metastasis to bone is demonstrated by the fact that castration or continued administration of estrogens causes diminution of acid phosphatemia, with a parallel improvement in the general condition of the patient and a diminution of symptoms of metastasis to bone, whereas administration of androgens aggravates the symptoms and increases the acid phosphatemia. Cosmetic bilateral castration is the operation of choice. It is performed with the patient under local anesthesia and consists in opening the tunica albuginea, removing the testicles and injecting a small amount of sulfanilamide within the empty scrotum and suturing without drainage. A small hydrocele, of about 30 cc., replaces the testicle. The operation controls the spread of the bone metastasis and improves the general condition of the patient. Whether the hydrocele will be permanent remains to be seen.

### Revista Chilena de Pediatría, Santiago 12:761-834 (Oct.) 1941

*Value of Centers of Ossification in Roentgenologic Diagnosis of Rickets.
J. Schwarzenberg L., E. Valle Q. and A. Aguilera.—p. 761.
Tuberculous Reinfection in Children and Adults. J. Peña Cereceda and M. Felman .- p. 791.

Centers of Ossification in Diagnosis of Rickets .-Schwarzenberg and his associates aimed to determine the diagnostic value of tardiness in appearance and development of centers of ossification in rickets. On the basis of their clinical observations they concluded that rickets retards the appearance of centers of ossification in direct relation to the intensity of the disease. The absence of carpal centers before the tenth month of life is of no value for the diagnosis of rickets. After ten months its value is relative and should be judged together with the rest of the symptoms. The defects in the structure and size of the centers of ossification have diagnostic value at any age. Certain dystrophies seem to be the cause of the retarded appearance of nuclei of ossification. In cases in which the diagnosis is doubtful the vitamin "push" test (administration of a single large dose of vitamin D) is frequently capable of clarifying the cause of the absence or the defective structure of the centers. The sudden and disproportionate appearance of centers or the increase in ossification fortifies the roentgenologic diagnosis of rickets.

### Wiener klinische Wochenschrift, Vienna 54:745-760 (Sept. 5) 1941

*Tuberculosis of Bones and Joints. A. Wittek.-p. 745. Endometriosis of Urinary Bladder. K. Hennig.-p. 750.

Tuberculosis of Bones and Joints.-Wittek observes that children with tuberculous spondylitis may cry out at night and complain of abdominal pains, or of pain in the knee. Peculiarities in walking, avoidance of bending and turning and Baeyer's symptom are significant. These signs, however, may be produced by lesions other than tuberculous ones. Roentgenologic examination of the spine may give negative results in the early stages of tuberculous spondylitis. Differentiation of tuberculous spondylitis from other spinal disorders, such as osteomyelitis, typhus spondylitis, lymphogramulomatosis, gumma and tumor metastasis may be difficult. The possibility of miliary dissemination and of the development of tuberculous meningitis makes the prognosis grave. Fistula formation is an unfavorable sign. Tuberculosis of bones and joints is not a local process but a manifestation of a generalized process. For this reason the treatment must be general. Conservative treatment, with emphasis on fresh air and heliotherapy, has given good results, but long duration is one of its disadvantages. The author recommends conservative treatment for growing patients whenever possible and resorts to surgical intervention only in exceptional cases. Thus he may remove a juxta-articular focus to avoid perforation into a joint. Resections are never done for children, but for adolescents arthrodesis of the hip joint may be done to hasten recovery. For adults surgical treatment is employed (1) to save life or (2) to reduce the duration of the treatment.

### Book Notices

The Hospitals Year-Book, 1941: An Annual Record of the Hospitals of Great Britain & Ireland Incorporating "Burdett's Hospitals & Charities," Founded 1889. Issued under the auspices of the Joint Council of the Order of St. John and the British Red Cross Society and the British Hospitals Association (Incorporated). Sub-Editor: A. E. Ceadel, F.S.S. Cloth. Price, 22s.; \$4.40. Pp. 299, with Illustrations. London: Central Bureau of Hospital Information, 1941.

The Hospitals Year-Book is a classified directory of hospitals and related institutions throughout Great Britain and a compendium of knowledge on hospital topics. The directory section presents names, addresses, persons in charge and, with the use of symbols and columns, a truly amazing amount of useful information about hospitals and related institutions in Great Britain and overseas. Separate directories include voluntary hospitals, municipal hospitals, maternity hospitals and homes, mental hospitals, institutions for the chronic and incurable, and convalescent hospitals and rest homes. There also is a long list of contributory schemes and funds, and names of examining bodies. The service of the British hospitals in war times is well outlined by authoritative descriptive articles on the bombing of hospitals (illustrated), war shelter hygiene, regionalization of hospitals, financial review of voluntary hospitals and the future of voluntary hospitals. There is much information of special interest to hospital administrators, ranging from purchase tax to road traffic accidents. This issue of the Year-Book contains many features of special interest and help to Americans who are connected with the service of hospitals in defense and their protection.

Standard Bodyparts Adjustment Guide: Traumatic Cases, Occupational Diseases, Disability Evaluations, Medical Fees, Statutory Digests. Fabrikold. Price, \$15, including ten years' revision service. No pagination, with illustrations Chicago: Insurance Statistical Service of North America, 1941.

This loose-leaf manual, compiled by the Insurance Statistical Service of North America, will strike many physicians and others as a particularly convenient compilation of a great many clinical and administrative aspects of disability evaluation and accident and disease indemnification. The material is not designed to appeal to physicians alone and, indeed, many of the anatomic charts and much of the medical data presented are directed at interested nonprofessional groups, and of these principally insurance adjusters. In case of troublesome appraisal of working or earning power after accident or disease, the physician will still be obliged to consult the more extended and standard reference works in this field. The discussion of fees contained in this book can be studied with profit by nearly every physician who comes in contact with compensation problems. The method employed is to list in parallel columns the minimum, maximum and mean average fees for specific medical procedure, including those established for laboratory, x-ray, dental, special consultation and after-care. Subject matter is drawn from fee schedules adopted in eighteen widely diversified states. To be sure there are two schools of thought about fee schedules, the serious objection being that minimum rates tend to become fixed as maximum, no matter how much extra care or skill has been necessary in the unusual or refractory case. Nevertheless, since three levels of fees are included, dependable listings of this kind may be useful in combating the insurance organizations which habitually shave fees because the income is certain or which habitually shop around for the cheapest available medical service. Other helpful sections of the book cover the occupational diseases, listing the character of exposure and symptomatology and a final summarization of the workmen's compensation and occupational disease acts of all American jurisdictions. Here again the data are conveniently arranged for ready reference and appear dependable enough for all ordinary purposes. If information in greater detail is required, recourse had better be taken to official documents. For example, it is indicated that Michigan has no rules or regulations relating specifically to compensation for hernia. Actually, hernia is listed in the schedule of occupational diseases in that state.

You Too Can Have a Baby (A Plan for Parenthood). By Abner I. Weisman, M.D., Adjunct Gynecologist to the Jewish Memorial Hospital, New York. Foreword by Dr. Max Huhner. Cloth. Price, \$2. Pp. 256, with 14 illustrations. New York: Liveright Publishing Corporation, 1941.

The author states that his purpose in writing this book is to help couples who wish to have a baby and are unable to of their own volition, to elevate the standards of education regarding sex and fertility, to correct many myths and much misinformation and to provide a source book for the layman who is interested in the problems of fertility.

The first thirteen chapters of the thirty-four in the book deal with the anatomy and physiology of reproduction, fertilization, pregnancy, confinement and labor. There are some inaccuracies in the text which should be corrected in the next edition. For example, on page 44 the author states that "medical authorities are of the opinion that the two ovaries alternate each month in expelling eggs." On page 88 he states that the breaking of the "waters" is the forerunner of the real labor, whereas often the membranes do not rupture until the end of the first or second stage of labor. On page 85 he states that intercourse should be refrained from "almost completely" in the last two months of pregnancy, and on page 105, in instructions to the prospective parents, he writes "during the last month of pregnancy, sexual intercourse is forbidden."

Chapters 14 to 19 deal with sterility and its causes, with a discussion of the examination of both husband and wife, including the methods of examination of the semen and essential tests for the wife. Chapters 19, 20 and 21 deal with the treatment of sterility, including instructions to the couple as to the optionum time for intercourse and methods which may be found helpful. The author then discusses venereal discases and sterility, habitual abortion, ectopic pregnancy and sterility following stillbirths. On the last named subject he states that erythroblastosis fetalis is not likely to occur with a subsequent baby. This is contrary to the accepted belief. The last chapters deal with artificial insemination with semen from the husband or a donor, the medicolegal aspects of artificial insemination, adoptions and the social aspects of the barren couple.

While the problem of sterility is vitally interesting to many childless couples, and while this book is a contribution toward their help, it is not completely satisfactory for its purpose. The title is misleading, as the author himself states that only a portion of the sterile couples in this country can be helped, by scientific means, to have a baby.

Eagleton's Index and Abstracts of Literature on Progress in Intracranial Lesions Belated to Aural and Nasal Conditions. Published in Archives of Otolaryngology, 1925, 1926, 1927, 1928, 1929, 1932, 1937, 1940. Published for Gratultous Distribution to American and British Otologists in the Interest of Anglo-American Unity, and to Commemorate the Enactment of the Lend and Lease Law—"a New Magna Carta" of Democracy's International Cooperation, by Wells P. Eagleton. Edition limited to 1,000 copies. Paper. Various pagination, with 2 illustrations. Newark, N. J., 1941

For fifteen years the author abstracted literature pertaining to advances in the knowledge of intracranial states in relation to conditions of the ear, nose and throat. The first half of this volume is an assembly of the author's thoughts or facts concerning these numerous contributions. The other half of the volume comprises a reprinting of papers by Dr. Eagleton which have been published in the Archives of Otolaryngology during the last several years. The author is distributing this edition gratuitously to American and British otologists in the interest of Anglo-American unity. His aim also is to make accessible to sincere workers in this field a compilation of recent literature on borderline subjects pertaining to otology or rhinology and to neurology or neurosurgery, a field in which the author is internationally known.

The Toxemias of Pregnancy. By William J. Dieckmann, M.D., Associate Professor of Obstetrics and Gynecology, The University of Chicago, Chicago, Cloth. Price, \$7.50. Pp. 521, with 53 illustrations. St. Louis: C. V. Mosby Company, 1941.

The toxemias of pregnancy are probably as old as medicine itself. The author's monograph is a testimonial not only to the important advances that have been made in the field but also to our lack of knowledge. Dieckmann has exhaustively considered every aspect of the subject and has included his own

extensive studies as well. He points out the numerous controversial factors which make the problems involved so perplexing and attempts to correlate the chemistry, pathology, physiology, pharmacodynamics, hormones and constitution according to their places in the field. With minor exceptions he has carefully presented practically all of the work that has been done up to now. The most important chapter in the book is that on physicochemical determinations. The material is exceedingly complicated and this probably explains why so few obstetricians per se have made contributions to the subject. A good part of the research that is taking place is in the hands of the chemists and internists, and although this is entirely justifiable it suggests that much more may be accomplished if these workers could be combined as a team. The monograph is deserving of the highest praise. The author has presented his subject clearly. Numerous charts, graphs and case reports illustrate his careful conclusions. The chapter on treatment is excellent. It is recommended to the entire profession, but to the obstetrician it should prove invaluable.

Venereal Diseases. By E. T. Burke, D.S.O., M.B., Ch.B., Director of L. C. C. (Whitechapel) Clinic, London. Cloth. Price 30s. Pp. 549, with 141 illustrations. London: H. K. Lewis & Co., Ltd., 1940.

As is customary in many of the European countries, this volume is devoted not only to syphilis but also to gonorrhea, trichomonas infections, chancroidal infections, poradenitis (lymphogranuloma venereum) and granuloma inguinale. Most of the comments on the volume will be limited to the subject of syphilis.

As the author himself states, many of the opinions are at variance with general teaching. For example, this is true of the lipoid concept of syphilis and of the mode of action of arsphenamine and bismuth and of the evaluation of antisyphilitic therapy. Unfortunately, space does not allow discussion of these, particularly of the first, which is at least a thought provoking approach to syphilis and its spread in the body. He divides syphilis into acute and chronic stages. Under the former one finds first degree, seronegative type; second degree, seropositive type; third degree, general secondary type, and fourth degree, up to complete disappearance of the secondary manifestations. Under chronic syphilis there are fifth degree, endosyphilis (latent syphilis); sixth degree, tertiary, cardiovascular and visceral, including neurosyphilis; seventh degree, neurosyphilis including meningeal, and, eighth, prenatal syphilis.

Burke is a firm believer in the use of continuous therapy as advocated generally in this country. Moreover, he is a strong proponent of fever therapy in central nervous system syphilis and in certain types of gonococcic infection. While he elaborates a rather formidable method of estimating antisyphilitic compounds in terms of therapeutic units, on the whole his end results and recommended dosages are quite acceptable. He does not think that bismuth and arsenic have a direct spirocheticidal action. He does not recommend bismarsen, and he believes that acetarsone has a much lower therapeutic action than arsphenamine. He is a great believer in the use of the liposoluble bismuth as the bismuth compound of choice in the treatment of syphilis. He thinks that intraspinal therapy for central nervous system syphilis is "obsolete and unsound." He still thinks that there is a place for Zittman's decoction in malignant syphilis. author believes that myocarditis may be encountered even in early syphilis and completely accepts Warthin's teachings. Moreover, in his opinion pulmonary syphilis is more common than is generally supposed.

It is noted that throughout the book the word "gland" is incorrectly used for lymph node. On page 74, ninth line from bottom of page, the word "trauma" is misprinted. On page 311 the statement is made that "the cord blood should always be taken and a positive result here means syphilis in both mother and child." This is certainly not accepted in all cases in American practice, nor do we believe it to be the case. The reviewer would not agree to the value of the nostrum Psorimangan in lymphogranuloma venereum, or to satisfactory results in this disease from the use of fuadin.

Burke's treatment of the subject of central nervous system syphilis is particularly satisfactory and would be of profit for any man to read who is interested in this particular subject.

While the author's opinions on various phases of syphilis are perhaps not generally acceptable, at least they are stimulating and provocative of independent thinking. The book is to be recommended to the reader desirous of getting a fresh slant on the subject of syphilis, but some of the six colored plates are rather poor. Many of the photographs are excellent, others poor. The binding is adequate. Moreover, there is a good working index.

A Long Term Study of the Experimental Neurosis in the Sheep and Dog with Nine Case Histories. By O. D. Anderson and Richard Parmenter. Published with the Sponsorship of the Committee on Problems of Neurotic Behavior, Division of Anthropology and Psychology, National Research Council, Washington, D. C. Psychosomatic Medicine Monographs Volume II, Nos. III and IV. Paper. Price, \$3.50. Pp. 150, with 36 illustrations. Washington, D. C.: National Research Council, 1941.

In this monograph are presented data and conclusions regarding experimental neuroses in sheep and dogs. The manifestations of neuroses in the animals used, the procedures precipitating them and the therapeutic procedures influencing them are discussed. The discussion is broad and the conclusions are conservative. "In summary, the working hypothesis here advanced is concerned with a circle of connected events. Repeated and prolonged emotions, incident to the experimental procedures, produce a chronic imbalance of the internal secretions which induce a constant stab of imbalance of the chemistry of the nerve cells. A change in the irritability of the nervous system results. The nervous system may become hyperirritable. Further and prolonged stimulation of the emotion reinforces and perpetuates the changes in internal chemistry and the vicious circle of events is complete."

A New Test for the Detection of Colorblindness. By P. B. Wiltberger, B.Sc., M.Sc., M.D., Medical Examiner, Civil Aeronautics Administration, U. S. A. Boards. Price, \$8. Pp. 22, with 19 plates. Columbus, Ohlo: Warner P. Simpson Co., 1941.

The author believes that the Ishihara test, now in common use for color blindness, is mainly a test of color "intensity" and cannot be entirely relied on. He presents an objective test consisting of a set of plates made up of nonfading color "chips" of high chroma, high value and accurate hue. The subject need not know the name of a single color. The test is based on the fact that when one gazes at a given color for an appreciable length of time and then shifts the gaze to a blank sheet of white or neutral gray paper the complementary color will appear on the paper as an "after-image" and will be of the same size and shape. The tests can be easily made but will fail in a certain percentage of cases because of lack of concentration on the part of the subject tested. The price of the book seems entirely out of line with the contents.

The Autonomic Nervous System: Anatomy, Physiology and Surgical Application. By James C. White, M.D., Assistant Professor and Tutor in Surgery, Harvard Medical School, Boston, and Reginald H. Smithwick, M.D., Instructor in Surgery, Harvard Medical School, Second edition. Cloth. Price, \$6.75. Pp. 469, with 92 Illustrations. New York: Macmillan Company, 1941.

This edition of Dr. White's monograph has been extensively rewritten and expanded. It is a refreshing and gratifying experience to read about the autonomic nervous system as a living, dynamic, functioning apparatus. The subject is so treated largely because the authors are not anatomists or physiologists but clinicians dealing with actual disturbances in living human beings. In this book the reader may find the latest facts and theories in proper perspective. There are excellent discussions of clinical syndromes and surgical procedures. The book is written interestingly; it is well illustrated and excellently documented with carefully chosen references. The book is a necessity for the library of the physician as well as of the specialist.

Hospital Bailads. By Frederick E. Keller, M.D. Cloth. Price, \$1 Pp. 43. Philadelphia: Dorrance & Company, Publishers, 1941.

This is a collection of poems covering everything from the lofty hospital building to the lowly tonsil. Many are on the serious side and thought stimulating; some, however, provoke unexpected and delightful chuckles. Doctors especially should enjoy this book immensely, finding in it parallels to many of their own impressions and experiences.

# Queries and Minor Notes

THE ANSWERS HERE FUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES THEN DO NOT, HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY ANOLYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT DE NOTICED LIFER MUST CONTAIN THE WRITERS NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST

### SENSITIVITY TO SOAPS

To the Editor—A married woman aged 45 became sensitive six months ago to certain soaps, flakes and chips which she used in the course of her washing about the house. After using these soaps she would have sever attacks of locrimations, sneezing profuse thinorrhea and stuffing of the nose. The attacks last several hours and usually end in two days Examination shows the nasal mucous membranes and turbinates pale, the air space is practically blocked and the conjunctiva shows similar changes. She can use Life Buoy, Vel and Sofwash soaps without acquiring the sensitive symptoms. The soaps that give her the most trouble are Ivory bar soap, Ivory soap flakes. Chipso granules. Chipso flakes, Kirk's Flake White Bar Soap, Rinso granules, Lux, Bubble bath and, most of all, Dreft is there any agent present in the soaps which now irritate her?

T. P. Walsh, M.D., Garrett, Ind.

ANSWER—It is possible that soap is not the primary cause of the nasal symptoms but that it is a secondary factor which acts as an irritant in a nose sensitive specifically to other substances. The reason for suspecting this is that there is no pattern in the history as given to suspect sensitivity to any common ingredient of soaps. The composition of the various soaps mentioned not only varies from soap to soap but may vary materially in different batches of the same brand.

In general, soap is a sodium or potassium salt of any of the ligher fatty acids. The fats used vary greatly from time to time depending on their market price and availability. Some of the common fats used are cottonseed oil, coconit oil, corn oil, linseed oil, kapok oil, rapeseed oil, olive oil, palm oil and sunflower oil. In addition, many animal fats are used, a few of which are prime tallow, bone grease, packing house grease and garbage grease. To these oils are added one or more of the following simple chemicals sodium silicate, sodium metasiheate, trisodium phosphate, disodium phosphate, anhydrous etrasodium pyrophosphate, sodium hydroxide, potassium hydroxide and sodium carbonate. These are the chemical constituents that go into most soaps.

In addition, various soaps contain perfumes or scenting substances, as creosote, contained in "Life Buoy". It is these scenting agents which are usually the cause of alleigy. This does not appear to be the case from this patient's history. She seems to be as sensitive to the unscented soaps as to 'Bubble Bath," which is highly scented. On the other hand, she tolerates 'Life Buoy," which not infrequently is a cause of symptoms because of its creosote content, and is affected most severely by 'Dreft," which is not a soap in the ordinary use of the term but consists of sodium laurel sulfate and sodium sulfate.

We must conclude, therefore, that there are too many incomputible statements in this history to consider the likelihood of a single component in these various soaps as a cause of the symptoms. The most practical way of dealing with this type of case is to avoid soaps that the patient thinks are the cause of trouble and use only those that are not suspected. There is no successful way of desensitizing to soaps.

### TOXICITY OF LUCITONE AND VERNONITE

To the Editor —A patient who is a dental technician works with Lucitone (methyl methacrylate resin, Du Pant) and Vernanite (acrylic resin Manasai, Rohm & Haas Company, Philadelphia) These are inflammable compounds and volatile I inderstand that cases of dermatitis have occurred with their use, and the manufacturers advise avoiding inhaling an excessive amount Do you have any information concerning the toxic properties of these chemicals?

A R Twiss M D, Ookland, Calif

NSWER—More is known about Lucitone, the methyl methactivitie, than the Vernomte modification, although both are believed to be esters of acrylic acid. Using Rohm and Haas's methicirlate products, Deichmann (Toxicity of Methyl, Ethyl and N Butyl Methacrylate, J. Indust. Hyg. & Toxicol. 23:343 [Sept.] 1941) has presented well defined experimental data on a series of these compounds. Through oral administrations, cutaneous applications, subcutaneous injections and vapor inhalations these materials were tested leading to evidences of pathologic effects. The low volatility of some methacrylates are unfavorable to the duplication of some results under actual industrial conditions. High concentrations led to accelerated

respirations, motor weakness, dyspnea, diminished reflexes, increased defecation and urination. In such animals as died, death occurred in coma as a result of respiratory failure case the introduction of these methacrylates was by the inhalation route, local irritation of the mucous membranes occurred, in addition to the aforementioned features Cutaneous application produced local but temporary irritation, and the possibility is that cutaneous absorption may take place. The urine of certain animals showed hemoglobin. In some animals the blood porphyrin is high. The respiratory tract is, however the site of the severest pathologic changes. From oral administration, corrosion of the wall of the stomach followed Nineteen mg of methyl methacrylate per liter of air killed all animals within five hours Subcutaneous introduction, although leading to fatal poisoning, required larger quantities than in the case of oral administration. The inference is that methacrylates may be regarded as toxic agents at least under some circumstances The possibility exists that the prolonged absorption of small quantities may lead to the production of porphyrms which through photo action may lead to dermatitis or other physiologic abnormalities More extensive information may be found in Frederick, D S Acrylic Resins, Modern Plastics 16:16, 1938

### POSSIBLE URTICARIA FROM SOLVENT

To the Editor—A patient has a generalized urticaria involving almost the whole body surface except the face and hands—It began on the feet and spread over the rest of the body in about three hours. The patient is a dry cleaner and for the past two years has been working with Skellysolv T (flash point 140 F) as the dry cleaning solvent—To this is added powdered asbestos as an adsorptive agent. Once a week caustic soda is added to the system to recondition the solvent and clean the filters—Is there anything in this process that could be the cause of the urticaria? It came on about twenty-four hours after the caustic soda wash was used—Have any reports on the toxicity of Skellysolv T been made to date?

John B Dressler, M.D., Ida Grove, Iowa

Answer—This type of solvent is preponderantly a petioleum derivative on the order of naphtha. Such materials are known to produce deimatitis, 'naphtha jags' and rarely chronic systemic naphtha poisoning. Generalized urticaria is unusual but possible. The beginning point of the urticaria on the feet rather than some exposed portion of the body does not suggest a result from direct contact. The work of any dry cleaner is likely to provide exposures to a wide variety of pollens and other dusts on garments prior to cleaning. If there is any connection between work exposure and the urticaria, the last mentioned factor may be of greater significance than the solvent materials. However, to rule out the latter, contact tests should be made with the several ingredients mentioned, as well as the mixture as a whole. Since the straight naphtha and the sodium hydroxide obviously will produce direct irritation, any test made should utilize high dilutions, such as with acetone in the case of naphtha and the mixture, while for sodium hydroxide aqueous dilutions may be made. The absence of reaction to any of these substances should lead to investigation of other causes.

### LADDER WIRE SPLINTS

To the Editor —Can you give me a description of the "ladder wire splints" used by the Army' F L R Roberts, M.D., Spirit Lake, Iowa

Answer—The term ladder were splints used in the Army refers to the so called Cramer were material used as a splint It is described in a government pamphlet (Medical Field Manual Splints, Appliances and Bandages, prepared under the direction of the Surgeon General, Field Manual 8 50, United States War Department, 1940). The frame is made in the form of three sides of a rectangle 3½ by 31 inches, with one short side missing, made of number 9 B and S gage malleable iron were. The crosspieces are made of one continuous piece of number 15 B and S gage malleable iron were shaped in the form of a gridiron with parallel bars about 5½ inch apart. The gridiron section of wire is attached to the frame by tightly wrapping with a malleable iron wire of about number 22 B and S gage, three turns to each lateral section and two in between being made. Ends are well wrapped and secured. After assembly the splint is heavily galvanzed.

It is used (1) in splinting for transportation of Pott's fractures, injuries, and fractures about the ankle and foot, in peace time gauze and cotton pads and in war a large first aid packet being used as padding, the splints, when padded and applied, are held in position by a bias muslin bandage (2) as a couptation splint in the field or in the hospital, or (3) when a malleable light splint is required for a temporary period for the shoulder, elbow or wrist to maintain a fixed position other than that of

extension

## SURGICAL CORRECTION OF CONGENITAL MALFORMATIONS

To the Editor:—1. A child now 2 months old was born with extensive malformations. There are bilateral complete cleft palate and harelip, bilateral club foot, webbing of the fingers of the left hand and absence of one of the joints of the ring finger of the right hand. Despite these severe handicaps the child has grown and is now a strong, lusty baby. Could you give the generally accepted opinion as to the best time for surgical correction of the abnormalities?

J. Stuart Staley, M.D., Marion, Va. J. Stuart Staley, M.D., Marion, Va.

To the Editor:—2. A patient 5 months old has webbing of the second and third fingers on each hand. One hand, the left, permits of free movement and pulling of the connecting skin, the anterior and posterior layers of the skin presenting no interposing tissue. On the right hand the interconnection is much less movable and presents a thicker layer between the two dermal layers; the fingers are inseparable by manipulation, although there seems to be no intimate connection between the deeper structures of the fingers themselves. Would you advise, generally, to operate now ar to wait until the child is older? If the latter, at approximately what age would the functional result be most promising? Where can I find literature which goes into the subject in detail?

William H. Mansperger, M.D., Buffalo.

Answer.-1. The repair on the lip should be started within the first six weeks if the child is in good condition; otherwise, as soon as the general condition can be built up. feet can be manipulated and put in plaster at the same time. The repair of the palate should be postponed until the child is at least 18 months old. Unless there is complete fusion of the fingers including the terminal phalanges it has been found advisable to delay operative work until the child is about 6 years old. If the terminal phalanges of fingers, of unequal length, are fused, they should be separated past the distal joint as carly as the first year in order to allow individual growth. The complete operation should be done at about the age of 6 years.

2. Experience has shown that it is advisable to delay operative work in cases of congenital syndactylism until the patient is about 6 years old. However, should two fingers of unequal length be completely fused, including the terminal phalanges, then they should be separated past the distal joint when the child is about I year old in order to allow free growth of both fingers.

Reference:

Davis, John Staige, and German, William J.: Syndactylism (Coherence of the Fingers or Toes), Arch. Surg. 21: 32-75 (July) 1930.

## POSTOPERATIVE SHOCK OR "LIVER DEATH"

To the Editor:—A well developed man aged 54 and sightly overweight the Editor:—A well developed man aged 34 and signify ore-neighbor had a gastric resection. It was necessary to give the following dnesthetics to get adequate relaxation: (1) pentothal sodium 1.5 Gm., (2) ethylene and ether vapor and (3) ether given by the drop method. The operation lasted three hours. After the operation the patient complained of extreme pain and had considerable oozing of blood into the stomach. He showed signs of circulatory collapse, the temperature rising the second postoperative day to 107 F. and the pulse rate increasing from 64 to 104. This history is brief, but I wonder if it fits in with "liver death"?

Mary J. Erickson, M.D., Thomasville, Ga.

Answer.—The description of the patient's postoperative course would lead one to suspect that the cause of death was shock associated with secondary hemorrhage. This probably was due to a prolonged, difficult operation.

The etiologic factors concerned in so-called liver death are poorly defined. For the most part, in reported cases liver death has followed operation on the biliary tract, usually cholecystectomy, and there has been some evidence that it is due to disturbances of the blood supply to the liver. The same result can follow thrombosis of the portal vein. If the portal vein or the hepatic artery was disturbed during the course of the gastric resection, the resulting disturbance to the liver and to hepatic function added to the shock of the surgical procedure might have been a factor in the rise in temperature to 107 F.

## DERMATITIS DUE TO SHAVING

To the Editor:—What is the prophylaxis and treatment of the dermatitis following shaving, especially in the neck? Is there some specific way of preventing the shaved hairs from growing into the epidermis and causing a rash? What shaving apparatus would you advise? M.D., Canada,

Answer.-The proper prophylaxis of the dermatitis that fre-Answer. The proper proper proper and to quently occurs after shaving is to avoid close shaving and to quently occurs after shaving is to avoid close shaving and to quently occurs after shaving is to avoid close shaving and to quently occurs after the proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper proper pro use an antiseptic lotion or a suitable cream. use an annseptic totion of a suitable cream. To prevent the shaved hairs from growing into the epidermis, the patient should be advised to shave along the line of growth of the hair of the beard instead of against it. The use of one of the standard electric razors may prevent the occurrence of this condition.

## SNELLEN'S TEST FOR VISION

For the calculation of loss of central visual acuity l To the Editor:have been using for near vision the A. M. A. reading card (Snellen's test type for near vision). Some company physicians use the Jacger method of testing for near vision. To facilitate computation, please let me know the equivalent of each Jaeger type in terms of Snellen's test type for near vision.

Jose S. Santillan, M.D., Monile P. Jose S. Santillan, M.D., Manila, P.I.

Answer.—The Jaeger series for testing near vision was never standardized, and various editions show considerable divergence in the size, shape and character of fonts used. It is impossible to present reading matter in lower case that precisely conforms to the mathematical requirements of optics. The reduced optotype is the only scientifically accurate means by which the acuity of near vision can be ascertain. Consequently short words composed of optotype block letters are used in the A. M. A. reading card for rating visual efficiency at the near point (14 inches, or 35 cm.). The Jaeger numbers roughly correspond to the following:

Jaeger Number	Point Type	A. M. A. Card (14/)	l Distance Equivalent	Percentage Visual Efficiency
1	3	14	1.0: 20/20	100.0
2	4	17	0.8; 20/25	95.G
3	5 - 6	23 - 2 _S	0.6 - 0.5; 20/30 - 20/40	$91.4 \cdot 83.6$
4 5	7	31	0.44; 20/45	79.3
5	71/6	33	0.42; 20/47	78.0
6	8	35	0.4; 20/50	76.5
7	9 - 10	47 - 50	0.3 - 0.28; 20/65 - 20/70	66.6 - 67.5
8	11 - 12	52 - 56	0.27 - 0.25; 20/74 - 20/80	$62.2 \cdot 58.5$
10	13	61	0,23; 20/87	54,9
12	14 - 16	63 - 70	0.22 - 0.20: 20/ 90 - 20/100	53,4 - 48,9
11	18 - 24		0.15 - 0.12; 20/130 - 20/170	37.5 - 25.0

## MASSAGE AND OSTEOARTHRITIS

To the Editor:—A patient says that she was told at an out of town clinic that she should not permit any one to massage her knees for hypertrophic arthritis. Is this an accepted idea, and if so why? I ordered gentle massage after diathermy, M.D., Clinton, lowa.

Answer.-Diathermy followed by gentle massage is a common form of treatment for osteoarthritis (hypertrophic arthritis) of the knee. It is a principle in the application of massage in the treatment of arthritis that it should never add by trauma to the inflammatory or otherwise diseased process already It follows from this that massage for the most part should be given in the neighborhood of but not immediately over the site of the arthritis. There are some exceptions to this statement in that gentle stroking massage may sometimes be profitably applied over a diseased joint.

DERMATITIS FROM EYEBROW PENCIL OR NAIL POLISH To the Editor:—A patient aged 48 has a eczema about the cyclids and the forehead which I believe is due to the use of an eyebrow pencil. She is otherwise in good health. Physical examination and all laboratory examinations give normal results. Do you know what is in eyebrow pencils which might cause eczema? Do you know of any such material that will not cause an allergic reaction?

M.D., Minnesota.

Answer.-The composition of the average eyebrow pencil is lamp black, paraffin, liquid petrolatum or petrolatum. This is a simple and for the most part harmless cosmetic. In all probability the eczema about the cyclids and the forchead is due to nail polish. Many cases of this sort have been reported in the literature in the past few months. This source of irritation should be investigated.

## USE OF ESTROGENS FOR DIABETIC PATIENTS

To the Editor:—Would you kindly give me some information regarding the use of estrogenic hormones in the amenarthess of the diabetic patient and what the effect is on the course of the diabetes.

Edna F. Patterson, M.D., Takama Park, Md.

Answer.-Estrogen, thyroid or combined estrogen and progesterone therapy may be used for the diabetic as for the non-diabetic and will have neither a beneficial nor a harmful effect on the course of the diabetes.

QUEEN ELIZABETH'S CONTRIBUTION TO MEDICINE
To the Editor:—The Examining Board for Nursing Registration in this state
recently included among its examination questions, "What did Queen
Elizabeth do for medicine?" I am unable to find any answer to this
question. Can you supply the information?

A National State City N. I.

R. A. Kilduffe, M.D., Atlantic City, N. J.

Answer.—In 1565 Queen Elizabeth issued a statute permitting the dissection of executed criminals.

# The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 118, No. 14

COPYRIGHT, 1942, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS

APRIL 4, 1942

## ACUTE ABSCESS OF THE THROAT IN CHILDHOOD

WILLIAM DEERING, M.D.

chicago

and

JOSEPH BRENNEMANN, M.D.

los angeles

This report deals with 250 cases of true and potential, or abortive, abscesses in the throats of children under 14 years of age observed in the wards of the Children's Memorial Hospital, Chicago, over a period of ten years ended Dec. 31, 1940. In 181 of these cases there was frank suppuration, as shown by spontaneous rupture or surgical drainage. In the remaining 69 a localized inflammatory lesion, apparently differing in no way from the lesions in the early stages of the other group, subsided without evident pus formation for one reason or another. Nearly all of these cases were treated in the pediatric service exclusively except when laryngologic help seemed indicated as in any analogous situation. This rather unusual procedure requires some justification, at least an explanation.

At the Children's Memorial Hospital, except for one resident in pathology, all the house staff are future pediatricians or general practitioners and all of these rotate through the special as well as the pediatric services. In other words, there was no resident in laryngology to train for the practice of his specialty. Since the pediatrician and the general practitioner are obviously in the only strategic position to see the early stages of abscess formation, it is logically important that they should have adequate training in that direction. They have, moreover, from the nature of their experience a wider knowledge of clinical setting in general and of specific differentiation from other conditions with which an abscess might be confused than has the larvingologist who comes into the picture at, or near, the finish. To the experienced pediatrician this becomes evident as he scans the reports in the literature on this subject, nearly all of which come from laryngologists.

The pediatrician is a general practitioner who limits his practice to a certain age group, and it naturally follows that it may be difficult in a borderline situation to determine, to the satisfaction of all concerned, whether a given relatively minor case is logically and safely pediatric or, indeed, safely surgical. We feel that the simple abscess which constitutes the vast majority can safely be left in pediatric hands, while the more serious lesion, or complication, calls for the help of the laryngologist. Furthermore, except in case of hemorrhage from erosion of a prominent artery or of invasion of the mediastinum, both rare in childhood, or of those even rarer cases reported in the literature, which we

have never encountered, in which a mere examination leads to sudden death, a fatality is nearly always due, not to the abscess itself, but to pulmonary, septic and other conditions in which the pediatrician is on more familiar ground than is the laryngologist. In all serious cases team work, at least, is indicated. The local lesion always has a child attached to it, and the child is often far more important than the local lesion. Finally, when Richards ¹ in his authoritative paper on retropharyngeal abscess, after emphasizing the importance of a correct diagnosis and pointing out that 29 of his 162 cases were diagnosed incorrectly, comments "Mention of these errors is not in any way intended to cast aspersions on en of the examining physician,

, but simply to call attention to the various deceptive signs and symptoms which this one single condition can present," one would seem justified, in the same kindly spirit, in considering this as further evidence of the need for more adequate training along these lines of the future pediatrician and general practitioner, who will eventually be called on, in nearly every instance, to stand in the first line of defense against such error in diagnosis. This view finds further confirmation in the following quotation from the same source: "Greenwald and Messaloff state that in their experience retropharyngeal abscess escapes recognition more frequently than any other acute disease in child-hood. None of their cases came to them with this diagnosis but had been treated for from one to three weeks with no suspicion of the correct diagnosis. It is only fair, however, to state that the majority of these cases had not been seen by a laryngologist, who naturally would be more likely to detect the presence of an Because of the emphasis which we have abscess." always placed on the recognition of these abscesses, the errors in diagnosis on the part of our pediatric resident and outpatient staff were practically negligible.

Our purpose, then, is to present our observations from a pediatric point of view, in a simple clinical way, without anatomic or pathogenic detail, in the hope that they may be of interest and service to the pediatrician and general practitioner, and possibly to the laryngologist because of the method of approach.

From a purely clinical point of view we recognize three main types of acute abscess of the throat in child-hood: retropharyngeal, retrotonsillar and peritonsillar, or quinsy. Parapharyngeal abscess will be considered as a complication, an extension, of one of these abscesses into the parapharyngeal space, or pharyngomaxillary fossa. Retropharyngeal abscess due to caries of the cervical spine does not belong in a discussion of acute abscess of the throat. No such abscess, moreover, occurred during the period covered by this series. While the differentiation between the different types of abscess

^{1.} Richards, Lyman: Retropharyngeal Abscess, New England J. Med. 215: 1120-1130 (Dec. 10) 1936.

is usually easily made, we have not always found it to be so especially in infancy. We have been compelled to record 8 as "uncertain" and we are not sure that our interpretation of the others is correct in every instance. We do feel sure that it is sufficiently accurate to make our statistical summaries as informative as if a few possible misinterpretations had not occurred. Because of our special interest in the subject, in the case of one of us extending over several decades, our own diagnostic and progress notes, as well as those of the house staff and the attending pediatricians and laryngologists, were more than usually full and adequate for our present purpose.

We have been impressed by the fairly constant chronological setting of the different types of abscess. Thus, the retropharyngeal abscess was almost restricted to the first two years of life; the retrotonsillar abscess came into prominence in the third and fourth years and tapered off after the seventh or eighth year; one peritonsillar abscess occurred in a child of 5 years, the rest

from the seventh year on.

All of these acute abscesses have four cardinal signs or symptoms that vary in degree but are rarely absent:

1. An infection in the throat, preceding or concurrent.

2. Pain on swallowing. Children rarely complain much with an uncomplicated throat infection. If pain on swallowing, even to some extent without swallowing, supervenes on such an infection an abscess must be suspected. The pain is usually distressing, varying in degree with different types of abscess and naturally leads to a disinclination, even a refusal, to eat. It is promptly relieved if the abscess breaks or is drained surgically.

3. Localized swelling in the throat, the site depending on the type of abscess. This may or may not be visible; it can

always be made out by palpation,

4. Unilateral, or predominantly unilateral, cervical adenitis on the affected side. Throat infections are commonly accompanied by pain, tenderness and swelling of the corresponding cervical lymph nodes, often to a pronounced degree. The adenitis tends, however, to be about equal on the two sides. A definite unilateral predominance, usually quite obvious to the eye, should always lead to suspicion of an abscess in the throat on the same side. Bilateral involvement of the cervical glands should occur with simultaneous bilateral abscesses in the throat, but this practically never occurs in childhood.

Other signs and symptoms of warning significance, such as noisy breathing with snoring and choking sounds; nasal, or mushy sound of the voice and cry; laryngeal obstruction with dyspnea, stertorous breathing and some cyanosis; regurgitation of fluids through the mouth and nose on swallowing; prominence of one tonsil or one side of the throat; deviation of the uvula away from an affected side, may occur to a varying extent with one or the other type of abscess. occurrence in the different types will be discussed under the appropriate headings. No significant relationship could be made out between the degree of fever and the severity of the illness, and no helpful prognostic information was obtained from blood counts. ranged from near normal to 106 F. and the lenkocyte count from normal to 82,000. In general both fever and leukocyte count ranged higher in the children with retropharyngeal abscess than in the others.

## RETROPHARYNGEAL ABSCESS

A retropharyngeal abscess is a suppurative involvement, secondary to an infection in the throat, of one or more of three to five paired lymph glands that lie parallel to one another on each side of the posterior pharyngeal wall in the potential space between the pre-

vertebral fascia and the posterior pharyngeal mucosa. These are said to atrophy after the third or fourth year, although "one or two remain on each side" (Lederle). It is generally assumed that this accounts for the fact that this kind of abscess is so rare after the period of infancy. If an upper gland is involved, or if there is an extensive abscess, this can usually be seen in the posterolateral angle of the pharynx. If the lower glands are involved they cannot usually be seen with ordinary pediatric technic; the palpating finger can, however, easily locate the swelling and can at the same time determine if fluctuation has occurred, and if so, to what extent. With such a low abscess there is now, in addition to the four cardinal symptoms, noisy, snoring, choking respiration, sometimes together with dyspnea and stertorous breathing as the larynx is impinged on. Cyanosis may occur but is rarely serious. The voice and cry are nasal and muffled in quality. Regurgitation through both nose and mouth may occur if the baby bravely attempts through hunger and thirst to overcome the handicap of painful swallowing. The tonsil is not pushed forward and there is no gross distortion of the throat as in the other types of abscess.

As in lymphadenitis elsewhere, suppuration may or may not occur. We did not, of course, attempt to determine the presence or absence of such involvement unless there were definite retropharyngeal symptoms. Of 105 cases of known retropharyngeal adenitis in our series, 23 subsided without apparent suppuration either spontaneously or following the administration of sulfanilamide; in 82 there was frank suppuration. Only the latter will be used for statistical purposes, as also in the other types of abscess. There was, however, no significant difference in the incidence as to the age of the child in the suppurative and nonsuppurative cases. Nearly 90 per cent of our 82 cases of retropharyngeal abscess occurred in the first two years of life, nearly 98 per cent in the first three years. Three of the infants were only 3 months old; one child was 3 years old and another 5 years of age.

## RETROTONSILLAR ABSCESS

By retrotonsillar abscess we mean an abscess directly behind the tonsil in the lateral pharyngeal wall. In the literature this is sometimes included under "peritonsillar" abscess. The swelling may or may not be visible on simple oral examination, but it is readily made out by palpation. The latter too is the surest method of determining whether suppuration has occurred and to what degree. In addition to the four cardinal symptoms and signs there is another that is equally constant: the affected side of the throat is not only more prominent, an asymmetry that is nearly always signficant; the tonsil is pushed forward and mesially so that more of it is visible than of its mate. This is in striking contrast to quinsy, in which the swelling is mesial to and in front of the tonsil, so that the latter is pushed back and out of sight or nearly so. Children with retrotonsillar abscess are usually not as sick as are the infants with retropharyngeal abscess and much less so than older children with quinsy.

It has seemed to us that this type of abscess deserves more attention than has been given to it. In our series there were 79 cases with suppuration and 38 in which there was prominent localized swelling which subsided without drainage, either spontaneously or following treatment with sulfanilamide. There were thus only a few less than of the retropharyngeal type. We feel confident, however, that our interpretations were correct

except possibly in a few instances in late infancy. Only 2 occurred before the end of the second year of life. They were most numerous in the third and fourth years, about one half of the total number occurring during this period. After this they were fairly equally distributed up to and including the eighth year, after which they rapidly dropped to 4 in the ninth year, 3 in the tenth and 1 each in-the eleventh and twelfth.

## PERITONSILLAR ABSCESS

There were 11 cases of peritonsillar abscess, or quinsy, and 8 cases in which an initial swelling subsided either spontaneously or following the use of sulfanilamide. The youngest child with an abscess was 5 years old; the others were 7, 8, 9, 10 and 11 years of age, each year represented by two abscesses. This adds further support to the well known fact that quinsy is a rarity before the sixth or seventh year and that the incidence is low all during childhood as compared with that of other abscesses or with later life. In addition to the symptoms and signs common to all abscesses there is the obvious swelling, or bulging, mesial to and in front of the tonsil, causing the latter to recede and the uvula to deviate to the opposite side. A striking and characteristic sign, absent in all other kinds of abscesses of the throat, is the inability to open the mouth to more than a very limited extent, owing both to trismus from local conditions in the throat and to extreme pain when it is attempted. The rather prolonged course of the disease, the constant pain, the extreme dysphagia, the high fever, the loss of sleep, all lead to a severe degree of prostration and loss in weight.

#### PARAPHARYNGEAL ABSCESS

Only one parapharyngeal abscess was encountered. This will be discussed later.

#### EFFECT OF TONSILLECTOMY

In only 11 instances were abscesses found in children on whom a tonsil and adenoid operation had been done. Seven of these were retrotonsillar, 2 were peritonsillar and 2 were "uncertain."

#### DIAGNOSIS

The diagnosis of an abscess in the throat should rarely be missed if the condition is constantly in mind in the presence of any of the signs and symptoms that are so characteristic. Differentiation between the various types of abscess is sometimes difficult, especially in infancy and early childhood or if spontaneous rupture has occurred. In the great majority of cases it is not. In this series we were "uncertain" eight times for one reason or another. In addition to what has been said, two things may well be stressed: the diagnostic importance of palpation and the ominous warning significance of hemorrhage.

While certain abscesses can be seen, the palpating finger is always more revealing as to the location and, even more important, as to the stage of development. It is a simple procedure. It requires however a special technic, of which speed is an important factor. We have fortunately had none of those experiences which have been recorded, such as alarming symptoms, apnea and even death from the mere insertion of the finger or a tongue blade, although repeated examinations are usually indicated in order to note progress, and many more are made in a hospital for pedagogic reasons. Except for the toothless baby, some form of mouth gag is indicated if the finger is bare, and the pediatrician can feel more with a bare finger than with one that is

covered by a rubber glove. A convenient and efficient mouth gag consists of two medium width tongue blades inserted on edge between the upper and lower maxillas in the region of the molars. This is more easily and readily removable and to us seems safer than the commonly used more cumbersome mouth gag. In examining for retropharyngeal abscess the moistened finger is rapidly passed over the tongue and down the pharynx. This method is probably the safer one but has the disadvantage of having the ungual surface of the finger next to the abscess. In larger infants the finger can safely be passed from above if too great force is avoided. This brings the palpating surface more naturally against the site of the abscess in the posterolateral angle of the pharynx. The examination must be made quickly without force, and care must be taken, if the finger is bare, that it is withdrawn before the tongue blades are removed. A bite in the presence of an infection in the throat is not without danger, as one of us can testify from personal experience. If there is a severe adenitis or an abscess, the normally concave posterolateral angle of the pharynx is obliterated on the affected side by a rounded protruding swelling. If fluctuation is present, it can readily be made out and also the degree to which it has advanced.

In palpating a retrotonsillar or a peritonsillar abscess, much the same technic is applied except that the finger is best inserted at the angle of the mouth on the affected side.

Frank bleeding supervening on an abscess in the throat must always lead to the suspicion of a parapharyngeal abscess with erosion of a large blood vessel, usually the common or internal carotid, although the vertebral artery may be the source of the hemorrhage, as in a case reported by Richards. Repeated pharyngeal hemorrhage practically establishes the diagnosis and makes the indication for surgical intervention imperative. There was only 1 case in our series, that of a boy of 7 years who died of a sudden massive hemorrhage.

#### PROGNOSIS

The outlook in throat abscesses in children is generally favorable, although there is a potential danger that must always be kept in mind. Death is rarely due to the abscess itself; more often it follows from an infection of which the abscess is a complication, not a cause. This is confirmed in our series. There were three deaths. Only one of these, the parapharyngeal abscess, was unquestionably due to the abscess itself. The other two followed retropharyngeal abscesses. One occurred in an infant of 7 months with "a low abscess encroaching on the larynx." The abscess was opened by one of the laryngologists, who reported obtaining about 2 drachms (8 cc.) of pus. Five days later he noted "Pharyngeal swelling practically all gone. Breathes normally." Two days later there was definite pneumonia, followed by a severe diarrhea, to which the infant succumbed twelve days after the abscess was opened. The necropsy report stated "Mucosa of pharynx intact. Small area of infection at site of abscess drainage. Mediastinum normal." This baby. moreover, had an eczema, a well known risk in any respiratory infection.

The second death following a retropharyngeal abscess was in an infant of 11 months with an extensive bronchopneumonia and an admission temperature of 106 F. There was so much obstruction to breathing that a tracheotomy was considered. There was "moderate

opisthotonos and a spinal fluid cell count of 66." A small abscess was opened by the laryngologic service. Two days later the following notation was made: "Retropharyngeal swelling has disappeared. Breathing is much easier." The temperature remained around 105 F. and the child was kept in an oxygen tent. Death occurred on the following day, obviously from an overshadowing bronchopneumonia. Although death could hardly be attributed to the abscess itself in either of these 2 infants they will be included in a statistical summary, as is usually done, because they died after a retropharyngeal abscess.

The total mortality of all patients with abscesses was 1.7 per cent; of those with retropharyngeal abscesses, Statistics of mortality from any one seriously misleading. The element of 2.4 per cent. source may be seriously misleading. luck may easily play a major part. Thus, Richards reports a mortality of 7.4 per cent in 162 cases of retropharyngeal abscess. Luck was not with him, since of his twelve deaths two were due to hemorrhage, one from a carotid and one from a vertebral artery; one to an insertion of a tongue blade; one to a preliminary laryngoscopy, one to a mediastinitis; one occurred three hours after a spontaneous rupture and in four there was a generalized septicemia. He 1 reports the mortality following retropharyngeal abscess in the hands of others as follows: Frank in 1921, 6.7 per cent in a series of 74 cases; Babbitt in 1924, 10 per cent in 50 cases; Guthrie in 1926, 15 per cent in 20 cases; Greenwald and Messeloff in 1929, 7.3 per cent in 55 cases; Bokai 4.4 per cent in 317 cases; Wishart in a series of 41 cases had only one death and that in a moribund patient, a preoperative fatality. From all this it is evident that an abscess in the throat of a child must not be taken lightly and also that luck seems to have been with us in our series.

#### TREATMENT

The general treatment is much the same as that of any serious infection of the upper respiratory tract and need not concern us in this connection.

We feel very strongly that in the local treatment of any abscess of the throat, other things being equal, we should wait before establishing drainage until there is not only fluctuation but advanced fluctuation, or pointing. Healing occurs more promptly and more surely if the abscess has fully matured; there is probably less danger of systemic invasion, and the necessity of repeating the operation is reduced to a minimum. This attitude explains, at least in part, the high incidence of spontaneous rupture, which, even to us, is a bit surprising in retrospect. Except in the case of the child with a parapharyngeal abscess there was, however, no serious complication following spontaneous rupture, and in this instance the abscess had broken long before the child came under our observation. Frankly, however, we were often a little chagrined, but not worried, when this occurred, as we naturally believe that an abscess should be opened when it is ripe both for the child's sake and for the training it affords. This does not apply to retrotonsillar abscess as fully as it does to the other types, as will appear later. Of eighty-two retro-pharyngeal abscesses thirty, of seventy-eight retrotonsillar abscesses sixty, and of eleven peritonsillar abscesses six drained spontaneously.

When abscesses were opened surgically this was done routinely by the assistant resident in the service at the time. The forceps was used in every instance except in a few cases treated by the laryngologists with the

scalpel. In the case of three retropharyngeal and one retrotonsillar abscesses, either for class demonstration or because of an ominous outlook, one of us (J. B.) assumed the responsibility. Five retropharyngeal and five retrotonsillar abscesses were opened by the laryngologists, in three instances with forceps and in seven with a scalpel. The five peritonsillar abscesses that were drained surgically were all done by the laryn-gologists with a knife. Anesthesia was not employed for several reasons: because it constitutes a hazard from local conditions in the throat, because there is commonly a concurrent respiratory tract infection, because of the danger of aspirating pus while the cough reflex is abolished or obtunded and, finally, because of the effect on the child of an anesthesia as compared with that of the momentary, relatively slight pain that goes with opening a ripe abscess through a thin walled, pathologic mucosa.

The retropharyngeal abscesses were treated with the child in the erect position. Snugly wrapped in a sheet he was seated with the legs free on the lap of one assistant, while another held the head and inserted two medium width tongue blades on edge, as a gag, between the upper and lower maxillas. Even more here than in the mere digital examinations we feel that there is less danger from the use of tongue blades than from the usually employed, more cumbersome, mouth gag, because they are so much more quickly removable, especially in an emergency. Facing the child, the operator inserts a moistened index finger over the root of the tongue, locates the point of maximum fluctuation and with the finger still in the throat quickly inserts a fairly sharp pointed forceps into the abscess and opens it slightly. The baby is immediately tipped forward and held in a horizontal position for a time so as to avoid aspiration of the first gush of pus. He is then kept in bed on his stomach or on one side for some hours. In only a few instances was it necessary to repeat the procedure, usually because it was done too early or the opening was too small. The subsequent course can readily be evaluated by the degree of relief of all symptoms and if necessary by digital exploration.

The whole procedure, from the time the tongue blades are inserted to the time when the infant is tipped forward need not, and should not, take more than five seconds, certainly not more than ten. This in itself has an appeal as compared with the more time consuming exaggerated prone, or Rose, position, apparently increasingly advocated by laryngologists. In this position, with the head extended backward the abscess is opened under direct vision with a knife, often followed by a forceps to widen the opening and by suction to minimize the danger of aspiration of pus. The pediatrician at least can see better with the end of his finger than he can with a laryngoscope and he doesn't trust himself with a knife in the throat of a struggling haby. There is, of course, no evidence available that either method carries a lesser mortality or morbidity than does the other. We feel too that if the child had a choice he would much prefer to face the ordeal in the erect rather than in the unnaturally constrained prone position, and, after all, the effect on the mind even of an infant must be weighed in the balance. The first gush of pus when the abscess is opened in the erect position adequately empties the cavity, and any danger of aspirating pus later has seemed negligible and would. after all, be about the same in the two methods of procedure. We are also inclined to think that the ragged

opening made with the forceps is less apt to close prematurely than is the cleancut opening made by a knife, thus calling for less frequent need for reoperation.

Approximately 76 per cent of the retrotonsillar abscesses ruptured spontaneously. This was not accidental; we allowed most of them to do so. They come to a head rather rapidly as a rule, have a thin walled covering and commonly rupture within a few days. There is usually not a very large amount of pus, and the children are only exceptionally as sick or in as much discomfort as are those with the other types of abscess. In older children, and nearly all of the retrotonsillar abscesses occurred well beyond the second year of life, there is a certain amount of psychic trauma that can be avoided if the abscess is allowed to follow its own We have had no occasion to regret pursuing this method of procedure. Only when things did not progress favorably, when the course was unduly prolonged or there was marked dysphagia or discomfort did we intervene surgically, nearly always with the forceps and in much the same manner as detailed under the treatment of retropharyngeal abscess.

To what extent nature will sometimes take care of things along devious routes was illustrated in the case of a child of 51/2 years with an abscess back of the left tonsil. Mere pressure on the ripe abscess by an examining finger caused a copious discharge of pus to shoot for some distance from the left ear. On cleaning the ear canal and again making pressure on the abscess, one could see pus welling through an opening in the anterosuperior wall of the external auditory canal. Recovery followed without further treatment. was no discharge into the throat at any time. This may have been poor surgery, but it does convey a lesson.

The course of a retrotonsillar abscess, both advancing and receding, can readily be followed by noting the degree of subjective symptoms, by the position of the tonsil and if necessary by palpation. Relief is often spectacular. An older child who can hardly be induced to swallow any supper will often eat a hearty breakfast if the abscess has broken over night.

True peritonsillar abscess, or quinsy, we were glad to turn over to the laryngologists, always with the hope that they would not operate too early or that it would rupture spontaneously. The old saying that if no pus was obtained there was "a relief from congestion" has, fortunately, pretty much gone into the limbo of discarded therapeutic attitudes. The characteristic inability of the child to open his mouth to a pediatrically workable degree and the uncertainty of hitting the abscess and nothing else, call for the special skill of the laryngologist. While it is desirable, per se, to await obvious pointing of the abscess, the distress and prostration are so great that intervention is often indicated as soon as definite fluctuation, or the spot at which pointing will occur, can be made out. That many of them, under favorable circumstances, will rupture spontaneously and safely is shown by the fact that more than half of those in this series did do so, i. c. 6 of 11

The course and treatment of the one parapharyngeal abscess that occurred in our series point, once again, to the fact that the rare lesion, as this is in childhood, is apt to be misinterpreted, or temporized with, especially when the only relief can come from a mutilating operation with potentially serious sequelae. The ominous, warning significance of a hemorrhage from

an abscess of the throat, especially if repeated, can well be emphasized again. This boy of 7 years had had a sore throat for two weeks, high fever, predominantly unilateral cervical adenitis, pronounced dysphagia, some spitting of blood for two days and a petechial eruption on his legs and torso obviously due to sepsis. When seen by one of us in the outpatient department, cautious inspection showed an intense redness and a swelling and edema that nearly obliterated all landmarks. There was some bleeding. A digital examination was unfortunately made by one of the house staff with a resulting fairly large and rather prolonged hemorrhage, which subsided after a time. There was an unfortunate delay in resorting to surgery, not due to the laryngologic service. Nine hours after admission he was taken to the operating room for ligation of the common carotid artery. The pharynx was now filled with fresh and clotted blood. With the beginning of anesthesia a sudden profuse hemorrhage occurred and death came promptly before ligation could be undertaken. retrospect it is obvious that the procedure should have been instituted at once, although the result would probably have been the same in the presence of an advanced sepsis. At necropsy there was found "a large perforation of the posterolateral pharyngeal wall below the level of the tonsil" and "a large erosion of the internal carotid artery." The parapharyngeal space was "filled with a large clot that could be lifted out of the abscess cavity. Cultures from the abscess and from the blood stream yielded a hemolytic streptococcus."

#### SULFANILAMIDE

It was during the period covered by this series that sulfanilamide came into use. It was the only drug employed, because in the earlier years it was the only one of the sulfonamides current and also because we thought that a hemolytic streptococcus was probably the active agent. The drug was administered to 15 children with retropharyngeal, 10 with retrotonsillar and 3 with peritonsillar localized inflammatory lesions that seemed likely to go on to suppuration. Of these, 7 retropharyngeal, 5 retrotonsillar and 2 peritonsillar lesions did not suppurate. These figures give an incidence of subsidence without abscess formation approximately twice that of the whole series. No deductions are, of course, justifiable from so small a number and in a condition so variable and uncertain. It is, however, our general impression that an abscess may be forestalled if sulfanilamide, or one of the later drugs, is given early enough and in adequate dosage. The limitations of what constitutes "early enough" are obvious and remain to be determined from future experience. We feel that, in the light of our present knowledge, one of these drugs is clearly indicated if suppuration does not seem to have taken place.

The evidence that these drugs have only an inhibitory action and should not be given if suppuration has occurred is more convincing than the evidence that they should be given in the earlier stages. We have seen an abscess inhibited twice only to recur later when the drug was stopped, unhappily prolonging the illness and the discomfort. Eight infants with retropharyngeal abscesses were given sulfanilamide. Five of the abscesses ruptured spontaneously while the drug was being given, one was inhibited but developed a full blown abscess five weeks later, one was drained surgically eight days and another three days after the drug had been stopped. Of five retrotonsillar abscesses, four ruptured while the drug was being given and the fifth

came to a head three days after it had been discontinued. One peritonsillar abscess subsided temporarily with sulfanilamide but recurred six weeks later.

## SUPPURATIVE CERVICAL ADENITIS

A final word as to the treatment of suppurative cervical adenitis that may result from any of these abscesses: In 12 instances, or 6.6 per cent, of our series, suppuration occurred. The incidence was inversely proportional to the age of the child, one half of them occurring before the fifteenth month. Cervical abscesses developed following seven retropharyngeal, four retrotonsillar and one peritonsillar abscess, the last in the youngest child in the series with that type of abscess. In addition to the factor of age there seems to be a direct relationship between the length of time that it takes for the abscess in the throat to come to a head and the likelihood of an eventual cervical abscess. We feel very strongly that these abscesses should not be opened until there is not mere fluctuation but definite advanced pointing with a thin walled glossy covering of the abscess cavity. A 5 mm incision, if possible in a crease of skin for cosmetic purposes, together with drainage by means of a strip of rubber tissue or selvage edge of gauze for a couple of days is usually all that is necessary. If indicated, the incision can be kept open a few days longer by means of a groove director inserted just beyond the opening or by mere digital separation of the edges. The resulting scar is sometimes hard to find at a later time, a not unimportant item in an exposed area especially in the neck; and, again, the child is spared the greater pain of an early incision, the more prolonged drainage and the greater number of dressings.

There was 1 case in our series, the only one of its kind we have ever encountered, in which there was a direct communication between a cervical and a retropharyngeal abscess. This infant of 12 months entered the hospital with both a retropharyngeal and a cervical abscess, the latter, if anything, more advanced than the former, a very rare occurrence. When the abscess in the throat was opened the cervical abscess collapsed, and when pressure was made on the latter pus could be seen welling into the pharynx through the opening in the retropharyngeal abscess. Things seemed to progress favorably, but it was deemed more judicious to drain the cervical abscess externally five days later. Recovery was uneventful. In the older literature, especially, the advisability of opening some retropharyngeal abscesses externally nearly always comes up for discussion. It is hard to imagine any indication for external drainage of an acute abscess unless there is, as in this case, a free communication between the pharyngeal and the cervical abscess.

#### SUMMARY

In a clinical study of 250 cases of true and potential, or abortive, abscess in children under 14 years of age there were 181 abscesses and 69 cases in which suppuration did not occur. There were 82 retropharyngeal, 79 retrotonsillar, 11 peritonsillar, 1 parapharyngeal abscess and 8 of undertermined classification. There were two deaths following retropharyngeal and one due to parapharyngeal abscess. The total mortality was 1.7 per cent; that following retropharyngeal abscess alone was 2.4 per cent. Only one death was unquestionably due to an abscess itself, the parapharyngeal abscess. Complicating cervical abscess occurred in 6.6 per cent of the series.

707 Fullerton Avenue-4614 Sunset Boulevard.

INCIDENCE OF PELLAGRA THE IN OHIO HOSPITALS

WILLIAM BENNETT BEAN, M.D. TOM DOUGLAS SPIES, M.D. AND

MARION A. BLANKENHORN, M.D. CINCINNATI

In the extensive medical literature there is no study which gives any comprehensive appraisal of the general incidence of pellagra. Such reports as are available come from public health reports, mortality statistics and figures for hospitalizations in areas where the condition has long been recognized as a menace to health. Furthermore, there is no indication of the prevalence of pellagra in regions of this country where it has not been studied intensively.

As a consequence, there seems to be a widespread impression that this type of deficiency syndrome is very rare in the Northern states and exists only as a provincial problem peculiar to the endemic areas of the Indeed, case reports indicate that it is considered an exotic disease except in subtropical climates. For a number of years we have been engaged in the intensive study of pellagra in both sections of the country and have collected data which dispel any uncertainty concerning the wide distribution of nutritional deficiency in representative cities in both sections of the country.

Two previous reports of pellagra in Ohio, while indicating the occurrence, gave no indication of its incidence.1 A comparison of available figures drawn from published records of hospital admissions in several regions of the United States throws light on the frequency of pellagra in the so-called endemic and nonendemic areas. While such variables as standards for hospitalization and readmission, diagnostic alertness and availability of adequate interim treatment and dietary adjustment are not the same in different places, a study of pellagra admissions reveals some interesting facts about the problem of inadequate nutrition reflected by very ill persons requiring hospitalization and about pellagra occurring as a sequel of other diseases.

## MATERIAL AND METHOD

This report deals with the initial admissions of patients with the diagnosis of pellagra in the Lakeside Hospital, Cleveland, and the General Hospital, Cincinnati, and a comparison with admissions to hospitals in other areas. The Lakeside Hospital is a private institution with extensive facilities for teaching and investigation. The Cincinnati General Hospital is a municipal hospital where all the services are arranged for teaching purposes. The patients were all seen by members of the house staff and attending physicians and, during most of the year, by the special group doing research in nutrition. We have restricted the study to first admissions because the interest in pellagra stimulated by the nutrition research workers may well produce an arti-

These studies were aided by grants from E. R. Squibb & Sor and the Martha Leland Sheiwin Memorial Fund.

Drs. V. P. Sydenstricker, J. M. Ruffin and D. T. Smith supplied figures for admissions used in the text and tables.

From the Department of Internal Medicine, University of Cinciprati, College of Medicine and the Cinciprati General Hospital, Cinciprati, 2-7 the Department of Internal Medicine, Western Reserve University, and the University Hospitals, Cleveland.

1. Fischer, J. L.: Pellagra in the North, Ohio State M. J. 21:615, 1928. Hoerner, M. T. Pellagra in Ohio: Fourier Cases Occurrer in Dayton, Ohio, During 1928-29, Ohio State M. J. 27:296, 1931.

ficial factor increasing admissions. This trend would be seen especially in subsequent entries which are excluded from the tabulations.

We have included only cases presenting pellagrous glossitis and bilateral dermatitis, because these diagnostic criteria have been used in the reports tabulated for comparison (table 3). Since we have emphasized the very early change in the mucous membranes of the mouth and tongue as a specific index of nicotinic acid deficiency, many patients are now seen and successfully treated at an early stage of deficiency before dermatitis has occurred. A few have been observed for a time without any specific antipellagric remedy, and these patients eventually developed typical dermal lesions. Even using these criteria we feel certain that we are still overlooking many persons with larval or subclinical pellagra and related vitamin deficiency disciency, comparable at different places and periods of time.

On this basis we have selected the records of 113 cases observed in Cleveland from 1931 through 1935 and 128 cases from Cincinnati seen in the five years ended with 1939. Prior to the beginning of each period represented, there was no special study of pellagra in either hospital (tables 1 and 2). The Cleveland cases

Table 1.—Incidence of Pellagra in the Lakeside Hospital,

	Year								
	1930	1931	1932	1933	1934	1935			
Medical ward admissions Cases of pellagra	1,024 2	1,169 16	1,300 18	1,195 28	1,286 29	1,212 18			
Percentage	0.2	1.4	1.4	2.4	2.3	1.5			

constituted 1.5 per cent of all medical admissions, and the Cincinnati cases 0.95 per cent. The yearly increase in the number of cases diagnosed at each hospital probably reflects the interest stimulated by the intensive study of nutrition. The figures may well be interpreted as a result of dissemination of diagnostic skill rather than an increase in incidence.

## RELATED STUDIES IN THE LITERATURE

Cases of pellagra are classified as endemic, alcoholic or secondary, depending on the chief cause of the vitamin deficiency. Among the endemic are included those in which food fads, idiosyncrasies, such as vegetarianism, and some ill devised therapeutic diets figure as well as those in which it has not been possible to obtain proper food. In alcoholic pellagra the vitamin wants have not been satisfied because the beverage alcohol, the chief source of calories, ordinarily contains none and the diet does not make up the deficit. The term secondary pellagra includes cases in which the diet, satisfactory for the ordinary requirements of health, is inadequate when some disease obstructs the intake, accelerates the loss or raises the needs for the vitamin rich foods. The resulting pellagra is intrinsically the same whatever the manner of its origin.

There are several reports of hospital figures on pellagra in various Southern states prior to 1930, but data are not available for comparison with total hospitalizations. Boggs and Padget, in a study of pellagra in the Baltimore City Hospital from 1911 through 1930 inclusive, found 102 cases in 16.572 admissions, an inci-

dence of 0.68 per cent. There were a few more in the alcoholic class than either endemic or secondary subgroups. In many instances a number of factors could be considered as contributing to the failure of nutrition, but it had been possible to classify each case on the basis of the primary underlying cause.

Table 2.—Incidence of Pellagra in the Cincinnati General Hospital

	Year								
	1935	1936	1937	1938	1939				
Medical ward admissions Cases of pellagra	3,173 8	3,169 23	2,440 28	2,293 35	2,482 34				
Percentage	8.0	0.7	1.2	1.5	1.4				

Musser,³ reporting on the pellagra admissions to the Charity Hospital, New Orleans, for the years 1925 through 1931, found 751 cases in a total of 237,570 admissions, or an incidence of only 0.31 per cent. These were for the most part endemic cases, but some fell into

the secondary and alcoholic groups. I. S. McLester 4 found that admissions for pellagra at the Hillman Hospital, Birmingham, Ala., represented 0.83 per cent of all admissions for the period from 1920 to 1933. These were largely endemic cases. Studies on a large number of pellagrins treated as ambulatory patients have been going on in the Nutrition Clinic of the Hillman Hospital for five years under the direction of one of us (T. D. S.) and although several thousand have been observed only a few were admitted to the hospital. It should be pointed out that these figures might indicate that pellagra is more rare in certain Southern hospitals than in those we are report-This is because pellagrins are not ordinarily admitted unless they are considered emergency cases in many Southern municipal hospitals. In former years, severe pellagra was considered hopeless and mild pellagra not a sufficient reason for hospitalization.

Two more series are available in Harris's textbook ⁶ on pellagra. These include the records of Sydenstricker ⁶ for a twenty year period at Atlanta, Ga., and those of Ruffin and Smith ⁷ for a ten year period at Durham, N. C. By additional information for-

Table 3.—Reported Incidence of Pellagra in Seven American Municipal Hospitals

			*************		
Pluce	Period	Cases of Pel- lagra	Admis-	Per- cent- age	Average Yearly Pelingra Admis- sions
Baltimore City Hospital	1911-30	102	16,572	0.68	5
Charity Hospital New Orleans).	1925-31	751	237,570	0.31	125
Hillman Hospital (Birmingham,					
Alan	1920-33			0.83	
	1920-39	660	36,000	1.8	33
	1930-39	237	20,2791	0,9	21
•	1930-35	111	7,186	1.5	19
	1935-39	128	13,5571	0.95	26

[·] Approximate.

warded by these investigators, we have compiled the figures for the proportion which pellagra admissions bore to total hospital entries. For the Georgia clinic

^{2.} Boggs, T. R., and Padget, Paul: Pellagra, Johns Hopkins Hosp, Bull, 50: 21, 1932.

t Medical admissions.

^{3.} Musser, J. H.: Some Notes on Pellagra, Libman Anniversary Volume 2: 877, 1932. 4. McLester, J. S.: The Nature of Pellagra: A Critique, Ann. Int. Med. 8: 475, 1934.

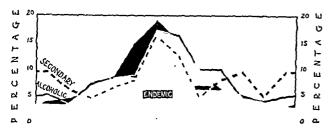
Med. 8: 475, 1934.
5. Harris, Seale: Clinical Pellagra, St. Louis, C. V. Mosby Company, 1941.
6. Sydenstricker, V. P., cited by Harris; personal communication to

the authors.
7. Ruffin, J. M., and Smith, D. T., cited by Harris; personal communication to the authors.

there was an average of 33 pellagrins for 1,800 ward admissions for each of the twenty years. The incidence of pellagra was 1.8 per cent. The figures of Ruffin and Smith were correlated with admissions to the medical wards. For the ten year period ended in 1939 there were 237 admissions for pellagra among a total of 26,279 admissions to the medical wards, an incidence of 0.9 per cent. At the Duke Hospital only about half of the pellagrins seen in the clinic were admitted. These figures are tabulated for comparison with the Cleveland and Cincinnati groups in table 3.

The figures in table 3 may be compared with those given by Raman ⁸ for a general hospital in the Province of Madras, India. In this hospital it was found that pellagra accounted for 0.65 per cent of all cases admitted to the medical wards. This is only an indication of the worldwide prevalence of pellagra. Whenever this disease is sought, it is found among the debilitated patients of large hospitals.

From these figures we can readily see that pellagra is an important medical problem in all these hospitals. Furthermore, it is at once apparent that the disease is by no means confined to certain regions of the Ameri-



JAN. FEB. MAR APRIL MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

Monthly incidence of alcoholic and secondary pellagra as compared with endemic pellagra. The secondary and alcoholic groups are from this paper; the endemic group is taken from the report of Smith and Ruffin.¹⁰

can Southern states but is found in areas where it is not generally thought of as an important problem. The percentages are not comparable because the pellagra admissions are compared in part with medical admissions and in part with total hospital entries. This makes the figures compared with medical admissions appear high. In the Cleveland and Cincinnati figures, no cases of readmissions are included. This reduces the total number by about half. Nonetheless, one must conclude from these figures that pellagra is an important hazard in regions not considered to have a pellagra problem. The Ohio cases are preponderately secondary to organic disease or chronic addiction to alcohol, but many resulted from dietary restriction, whether obligatory, ill advised or wilful.

It must be emphasized that the number of cases in the tables indicate only a fraction of patients with vitamin deficiency. No persons with ariboflavinosis and neuritis are included. It was estimated by Goldberger that for every person with typical clinical pellagra there are from twenty to a hundred with varying states of inadequate nutrition. Even this proportion omits the vast number of people whose diet, though not actually deficient and responsible for no recognizable disease, is far from the optimum for best health and vigor. From our experience we can state that hesitancy to make the diagnosis of pellagra without the terminal triad of dermatitis, diarrhea and dementia has been costly in lives and has retarded understanding of the disease. In any vitamin deficiency state early specific therapy is

S. Raman, T. V.: Pellagra in India, Indian J. M. Res. 37:743,

more valuable than that which comes later when the disease is advanced and appears in its textbook form. From a careful review of prodromal symptoms observed for varying periods before the cases became well established, we are learning to recognize a nascent deficiency syndrome before any physical sign is manifest. For these reasons we have made surveys of the nutritional status of patients in the medical wards of the Cincinnati General Hospital. In spite of the extreme difficulty of obtaining reliable information about the past diet, a rough classification is possible. Preliminary studies indicate a high proportion of patients whose nutrition ranges from borderline to obvious deficiency. History of prodromal symptoms or objective manifestations of nicotinic acid, riboflavin or thiamine deficiency have been found in approximately 10 per cent of a series of 345 medical patients admitted to the wards for some other condition.

While alcohol addiction, particularly if complicated by cirrhosis, was a frequent cause, gastrointestinal, cardiovascular and pulmonary disorders were the most frequent predisposing causes. Acute infections were important in precipitating the development of clinical signs of vitamin deficiency disease. In almost every case there were several factors militating against adequate nutrition: previous inadequate diet, anorexia, fever, alimentary tract disorders, vomiting, diarrhea, liver disease, cardiac failure and many other circumstances. This reemphasizes the complicated substratum on which pellagra is engrafted and helps to explain some of the many vagaries of this disease.

## SEASONAL VARIATION

It has been known for a long time that the incidence of outbreaks of pellagra rises in the spring to reach a peak in the early summer. We have therefore examined our material for the month of admission with pellagra, or the month of its detection if it developed in the hospital. Careful review of the histories reveals that clearcut evidence of glossitis or erythema appeared four to six weeks before admission in most cases. In the chart we have compared the percentage of each type classed as primarily alcoholic (169) and secondary (63) cases in this series with a table based on many thousand endemic cases compiled by Smith and Ruffin.9 Our figures include the ten year period that ended with 1939, while those from Ruffin and Smith are for the first five years of the same period. Since the alcoholic and secondary cases from Ohio follow the same trend as the endemic cases from the Southern states, we believe that this reemphasizes the essential unity of pellagra of endemic, alcoholic or secondary origin first stressed by Spies and deWolf.10 It also suggests that factors other than summer sunlight are important in this seasonal tide in pellagra.11 Besides variation in food, it will be important to investigate such factors as fluctuations in metabolism, bodily activity and infections for their influence on the pattern of seasonal incidence.

## COMMENT

In this study we have presented evidence that typical pellagra, the hallmark of advanced disproportion between nicotinic acid amide supply and requirement,

1933.

11. Smith, J. H.: The Influence of Solar Rays on Metabelism, Arch.

11. Smith, J. H.: The Influence of Solar Rays on Metabelism, Arch.

Int. Med. 48:907 (Nov., part 2) 1931. Sydenstricker, V. P., and Arristong, E. S.: A Review of Four Hundred and Forty Cases of Pellagra,

Arch. Int. Med. 59:883 (May) 1937. Smith and Ruffin.

^{9.} Smith, D. T., and Ruffin, J. M.: Effect of Sunlight on the Clinical Manifestations of Pellagra, Arch. Int. Med. 59: 631 (April) 1937, 10. Spies, T. D., and deWolf, H. F.: Observations on the Eticlorical Relationship of Severe Alcoholism to Pellagra, Am. J. M. Sc. 186: 521, 1933.

is a serious problem in two large hospitals in Ohio. While our figures are not suitable for exact comparison with other reports, it is obvious that pellagra is prevalent in Northern states. We believe that variations in its reported incidence depend on variations in recognition as well as true prevalence. Furthermore, clinical pellagra indicates advanced breakdown in nutrition. As the visible part of an iceberg, it may be the signal of widespread but subsurface danger in population groups under consideration.

In the present state of our knowledge, it is not possible for the practicing physician to derive much help in diagnosis from the complicated laboratory procedures used in nutritional research. Pellagra, beriberi and riboflavin deficiency have been found whenever an intensive search has been made in hospitals caring for large numbers of patients with serious disease. Secondary pellagra is recognized as a potential menace whenever familiarity with its early manifestations parallels careful clinical search for its presence where it is apt to occur. Unwise use of alcohol and ill advised diets used for reduction of obesity, treatment of peptic ulcer or control of diabetes frequently predispose to pellagra. While a careful appraisal of the history of dietary deficiency is still subject to many pitfalls, it should direct attention to the nutritional status of persons in whom it may be impaired. This is imperative wherever a combination of obstacles is placed in the way of proper nutrition. Any chronic illness or acute febrile disease. in addition to disorders of the alimentary canal, liver. heart and lungs which decrease available food when it is most needed, should be adequate warning of an impending deficiency.

Surgical operations on persons who have been suffering from some disease itself interfering with proper nutrition are apt to precipitate clinical signs of a deficiency syndrome. Shock, hemorrhage, anesthesia, nausea, vomiting, infection and fever, large quantities of parenteral dextrose and physiologic solution of sodium chloride, which not only increase carbohydrate metabolism but may effect a diuresis wasting vitamin stores, all oppose normal nutrition. Deficiency diseases may occur as an untoward sequel of operations under such conditions.

## SUMMARY AND CONCLUSIONS

The data in this paper are presented as a progress note in a study of pellagra and related vitamin deficiency disease begun by one of us twelve years ago. It is at once apparent that pellagra is widely prevalent. For the two Ohio hospitals studied typical pellagra was found in 1 to 2 per cent of the medical admissions. This figure was doubled when readmissions were included.

The true incidence of pellagra appears to be underestimated. This is due in part to failure to suspect, to recognize and to report cases. Shifting emphasis toward the early signs of deficiency has revealed a higher incidence than that indicated by such studies as we report here.

Typical pellagra is the response of individuals to advanced or severe deficiency of the antipellagra factor. Such cases represent only a small proportion of persons whose inferior nutritional status is a handicap which may prove perilous in the presence of other diseases. This study does not include the large number of persons in whom malnutrition manifests itself as ariboflavinosis or neuritis.

## PRESENT KEY PROBLEMS IN TUBERCULOSIS

EDGAR MAYER, M.D.

AND
ISRAEL RAPPAPORT, M.D.

NEW YORK

The sharpest controversy is now focused on three problems in tuberculosis:

- 1. Is a negative or a positive tuberculin reaction more desirable?
- 2. Are the lesions developing in recently exposed young adults of "primary" or "reinfection" type?
- 3. From what point should one date the clinical incipience of tuberculosis?

With regard to these three questions, it is in the first place to be emphasized that they have arisen only recently and are the result of the epidemiologic conditions which have developed in our midst within the last generation.

Previously in most communities it was true for the vast majority of persons that they become positive tuberculin reactors by the time they reached adolescence; that, while primary infections occurred in child-hood, progressive pulmonary tuberculosis developed mostly only in early adult age; that a latent interval of a decade usually elapsed between the time of the infections and the evidence of progressive disease.

Only since the development of pulmonary lesions in tuberculin negative young adults has been observed in direct consequence of recent exposure has the question arisen whether these lesions are of primary or reinfection type.

Only since progressive disease following exposure and conversion from negative to positive tuberculin reaction has become a common observation has the question arisen. From what point should one date the clinical incipience of tuberculosis?

It is our contention that a rational answer can be given readily to these questions, but the answer will be different according to the epidemiologic environment in question. Failure to consider the factor of the epidemiologic environment is at the bottom of most of the misunderstanding and dispute over these questions. It is particularly true that there is lacking appreciation of the role of the epidemiologic environment in determining the character of tuberculous infections and the evolution of these infections in the majority of persons in the community in question.

This thesis will be best understood when applied to the discussion of the three key questions. Before entering on the discussion, to aid understanding, I present a brief review of the epidemiologic background of tuberculosis in the form of a table which speaks for itself. All we need to add here is a brief comment on the epidemiologic environment now prevailing in this country to which the present discussion is essentially applied. It is important to know that while the country as a whole has already gone ahead a long way on the downgrade phase of the epidemiologic cycle, there are sections, areas and racial groups within the country and in the midst of our communities still showing features of a high level of tuberculization. It may be said that in these "nests" (Frost) tuberculosis is still at its epidemiologic peak. The differences between some already greatly detuberculized and some still highly

tuberculized groups are now much accentuated in a manner which should be clear from the table and the discussion of the three key questions which follows.

QUESTION 1.—Is a negative tuberculin reaction more desirable than is a positive one?

Answer.—A negative tuberculin reaction is more desirable in a nontuberculized environment while a positive one is more desirable in a tuberculized environment.

REASONS.—Facts.—Tuberculosis is all the more serious a disease, the less prevalent tuberculous infections are in the community in question. Conversely, the more tuberculosis there is in a community the more are infections tolerated without producing disease.

The greater the number of negative reactors in the community, the greater the clinical significance of the fewer positive reactions, because a greater proportion of the latter will represent infections severe enough to lead to progressive disease. Conversely, in a community

Features of Three Epidemiologic Phases

	Upgrade	Peak	Downgrade
Community	Virgin	Tuberculized fully	Detuberculization; focalization
Mortality	Rising	Highest	Dechaing stendily
Morbidity	Rising	Highest	Declining steadily
Resistance	Low but rising	High	Beginning to decline
Allergy	Low but rising	High, prevalent and permanent	Declining incidence evanescent characteresensitization
Contact	Increasing	Widespread and severe	Declining, particu larly in severity and frequency
Infection	Rising incidence	Prevalent before adult age reached	Declining incidence particularly before adult age
Reinfection	None	None, hardly ever before middle age	Rising incidence throughout adult age
Disense	Acute and sub- acute general ized forms	Chronic endoge nous phthisis and chronic hematog- enous forms	Chronic exogenous phthisis
Latency	Infrequent, short	Prevalent and long between primary and chronic pulmo- nary tuberculous between bouts of hematogenous dis semination	Declining and short- ening between pri- mary and chronic pulmonary tuber culosis

where the great majority are positive reactors the clinical significance of the latter is much less, relatively speaking, as the greatest proportion of such reactions represent only recurring contact.

Contact is always dangerous to tuberculin negative adults because these are presumably coming from a nontuberculized environment. The danger is particularly serious if contact occurs in a highly tuberculized environment (tuberculosis institution, homes of patients with open tuberculosis). In adults who have grown up in a tuberculized environment a positive tuberculin reaction is a sign of an infection long overcome and hence an asset.

It should be remembered, however, that in very young adults a positive tuberculin reaction may be a sign of only recent first infection the outcome of which is still unsettled. There is evidence that added exposure during this early phase of the infection is not healthful and may be harmful.

Interpretations.—In highly tuberculized communities the opportunities for exposure are so constant and ubiquitous that everybody is infected already in childhood and continues to be exposed to reinfection throughout life. Universally the first infection is

severe. In most cases it is enough to give permanent allergy. In a relatively small proportion of persons in the community as a whole, but in a considerable total number of people, the first infection is severe enough to leave lesions which remain susceptible of reactivation under the various exigencies of life, which is the so-called endogenous reinfection tuberculosis. Morbidity and mortality from the disease are high in such a community but the fatality of tuberculosis, considering the prevalence of this infection, is low. There prevails obviously very strong resistance to tuberculosis which is manifestly based on properties acquired by the first infection, which includes allergy. The vast majority of tuberculin positive reactors are safe in such a community.

Tuberculin negative individuals are safe only in a highly detuberculized community, where they may long remain uninfected or where infections are of a very much less severe type. Severe type of exposure is liable to become rather harmful to tuberculin negative ındividuals, Recent observations have demonstrated that a larger proportion of tuberculin negative adults so exposed will develop progressive lesions than is the case with already tuberculin positive individuals. It has been a long established fact that boys or girls who come from less tuberculized rural sections and become overexposed in a highly tuberculized city often develop disease. In the new epidemiologic environment we are dealing essentially with the same phenomenon in a somewhat different form and wider scale.1

QUESTION 2.—What is the character of the lesions that are developing now in recently exposed young adults? Are we dealing with "primary" or "reinfection" type lesions?

Answer.—In some instances we may be dealing with a truly first infection lesion. In other instances we may be dealing with lesions due to a recurrent infection. Both of these may have some features of a "primary" type yet follow the course of "reinfection" type tuberculosis; hence they cannot be told apart.

REASONS.—Facts.—True adult "primary" infections of identical course with childhood primaries ending up in calcified residues of the classic Ranke complex are not at all uncommon now when first infections have become postponed into adult age. "Primary-like" lesions produced by recurrent infections following evanescence of a preceding mild infection and its allergy are also quite common now. These too often end up in a residue which is in no way different from the classic calcified Ghon focus.

Progression to chronic pulmonary tuberculosis may occur now from truly "primary" but more often from the just described "primary-like" lesions, both of which represent exogenous fresh invasions.

Interpretations.—Under the present epidemiologic conditions a negative tuberculin reaction no longer indicates a noninfected state. Lesions arising after recent exposure in tuberculin negative individuals may now represent either true "primary" or "primary-like" recurrent infections. Not only is it impossible to tell these apart but there seems to be little reason for such separation.

In the first place our observations indicate that even recurrent infections with "primary-like" lesions may proceed to chronic phthisis not directly from the initial

¹ At this juncture may we point to our prediction (The Journal Oct 12, 1940, p. 1295), on the basis of the foregoing considerations, that a rise in tuberculosis mortality will soon have to be faced in this country. The current statistical data already available indicate clearly such a treat becoming manifest first in the greater population centers.

exogenous focus but rather indirectly from the lymphohematogenous secondary foci in the apical and subapical portions of the lungs. Then it is conceivable that in the present epidemiologic phase even true first infections might produce "reinfection type" rather than "primary type" tuberculosis. This is just what Israel and his co-workers have recently assumed.

If I understand these workers of the Phipps Institute correctly, they advocate the revolutionary step of discarding altogether the concept of "primary tuberculosis" built on the enormous amount of experimental pathologic and clinical work of two generations since Parrott, Kuss, Ghon and others. Current observations led these workers to the following three interpretations: 1. Tuberculous first infections, which occur now mostly in young adult life, rarely produce primary type lesions. 2. Young white adults of this country respond to first infection with reinfection type lesions. 3. The response to tuberculous infection is determined by the character of the individual resistance and not by the presence or absence of previous infection.

The last explains the first and second points of this concept, which may probably be best described as an immunobiologic explanation of the current changes in tuberculosis. Undoubtedly this concept has been inspired by the results of Lurie's experimental work, which has emphasized the role of natural resistance in determining the character of the infection.

The concept presenting epidemiologic causes for the changing features of tuberculosis is less revolutionary,

more simple and yet far reaching.

That the character of infections should change with the changing epidemiologic cycle has been a long emphasized fact. It is expressed in the general concept that the character of the epidemic determines the character of disease in all infections. It stands to reason that tuberculosis is no exception to this rule. Indeed, Frost years ago sufficiently emphasized the changing aspects of the tuberculous infection with the shifts in the epidemiologic environment. The latter we believe is a more logical explanation of the currently observed changes in tuberculosis. Point for point the logic of the latter concept as against the former might be stated as follows:

1. In the first place it is more logical to assume that "primary complexes" have become too mild, transient and inaccessible to clinical demonstration than to say that they no longer occur. As a matter of fact there is direct proof of increasing mildness of "primary complexes" already in the past. The rising incidence of evanescent tuberculin reactions in recent years indicates their complete obsolescence.

2. In the second place, it is hardly logical to insist on

the "reinfection type" character of any tuberculous lesion now when distinction between the "primary" or

"reinfection" type is admittedly no longer possible.

3. Finally it seems more logical to assume that recent rapid shifts in the epidemiologic conditions have had a more profound effect on the incidence and conditions of exposure than on individual resistance. We readily concede that in the present epidemiologic cycle people evince more natural resistance but postulate that primary infections have become more obsolescent because the conditions of exposure have materially changed.

QUESTION 3.—From what point should one date the clinical incipience of pulmonary tuberculosis?

Answer.—In very acute tuberculous processes the point of clinical incipience may readily be fixed to coincide almost with the time of first infection.

In very chronic tuberculous processes the clinical incipience cannot be fixed even with the appearance of the first demonstrable lesion.

REASONS.—Facts.—Tuberculosis is a process the evolution and pathogenesis of which differ with the character of the infection, which in turn changes with the epidemiologic conditions. In the epidemiologic upgrade phase the process is so rapid that it may be said to begin with the first invasion of the bacilli and their beginning multiplication at the site. At the epidemiologic peak the process is still set in motion by the first infection, but its evolution is so insidious that between the infection and the first clinical symptoms the period of latency may be one of years or even decades. Finally in the epidemiologic downgrade phase the process may require more than one infection to set it in motion and the evolution period shows the widest range from a few weeks to many years.

Interpretations.—Whether it is more logical to date the onset of pulmonary tuberculosis from the time a healthy person has first begun to react to tuberculin than it is to date it from the time a lesion has first become demonstrable by x-ray examination in his lungs will depend on age and place. This refers to the age of the person and the epidemiologic environment from which he comes and is living in. In persons reared and living in a highly tuberculized environment a positive tuberculin reaction is only to be expected. Here x-ray lesions are more often only potential and by no means definitely established phthisis. The vast majority of such lesions found in people in such an environment are definitely known to undergo more or less complete resolution and ultimate healing without ever producing clinical disease.

In persons coming from a highly detuberculized environment a positive tuberculin reaction may at times mark already the onset of disease. More often, however, there is a latency period of variable length during which presence or absence of a demonstrable lesion in the lungs is no criterion for the time of onset of phthisis. On one extreme there will be cases with such acute clinical onset that even the first positive roentgenogram shows already too extensive involvement. On the other extreme there will be cases in which the lesion first becoming demonstrable in the lungs remains for many months or years unchanged until finally its breakdown gives rise to progressive phthisis very abruptly.

The practical significance of the foregoing may now be stated as follows:

1. The younger the individual and the more detuberculized the environment, the greater the clinical significance of a positive tuberculin reaction and the phthisical potentiality of x-ray lesions.

2. Young people attending tuberculous patients must be very closely watched. Tuberculin negative persons are especially in danger. Even the tuberculin positive persons, if young, may have become positive only very recently and therefore are still not out of danger.

3. Since one cannot now tell apart the primary from the reinfection type lesion, all newly discovered x-ray lesions in young adults must be treated as potential phthisis. i. e., by a period of observation under rest.

4. On the individual himself and the local epidemiologic conditions must depend in each case determination of the point from which a newly arisen positive tuberculin reaction should be considered merely a sign of infection or an indication of clinical tuberculosis in need of treatment.

470 Park Avenue-64 East Fifty-Eighth Street.

#### AN EPIDEMIC OF COCCIDIOIDAL INFECTION (COCCIDIOIDO-MYCOSIS)

BURT L. DAVIS JR., M.D. RUTH TANGIER SMITH, M.D. STANFORD UNIVERSITY, CALIF.

CHARLES EDWARD SMITH, M.D. SAN FRANCISCO

An epidemic of coccidioidal infection would have been inconceivable five years ago. Then the usually fatal coccidioidal granuloma was the only recognized form of infection by Coccidioides immitis. During 1936-1938 Gifford 1 and Dickson 2 proved that this fungus more frequently produces mild infections. Many of us are still conditioned by the former conception of coccidioidomycosis as a deadly disease. We hope that the record of this small epidemic will emphasize the frequency and usually benign character of coccidioidal infection in its endemic areas.

These endemic regions are, like the site of our small epidemic, semiarid with hot, dry and dusty summers and autumns. The most publicized is the San Joaquin Valley, the southern component of the great central valley, of California. Other parts of southern California, Arizona, Texas and probably New Mexico and Mexico are endemic centers. Sporadic cases have been reported elsewhere in North America and Europe. other known endemic area is the dry Chaco region of South America. Many investigators have associated these dusty, arid qualities with the theory that the infection is generally acquired by the inhalation of Coccidioides chlamydospores. These spores, which develop in the mycelial form of the fungus, are extremely infectious. The fact that coccidioidomycosis does not pass directly from host to host 3 indicates that the endosporulating spherules, characteristic of Coccidioides in man and animals, are not well adapted to disseminating the infection. These deductions explain other features of the epidemiology of acute coccidioidomycosis such as the maximal incidence in the dusty season,3 the rapidity with which the infection is acquired and the ultimate infection of more than three quarters of the long time residents.⁴ The previous recovery of Coccidioides from one set of samples of San Joaquin Valley soil 5 is convincing corroborative evidence. The epidemic described here summarizes this entire epidemiologic concept.

The protean symptomatology of coccidioidal infection is also illustrated in this outbreak. We now recog-

nize that the symptoms of an initial infection are variable. Cases are usually diagnosed "flu" or "bronchitis," although many rarer diagnoses are also made.3 In from 2 to 5 per cent of such patients erythema nodosum and/or erythema multiforme develops, a symptom complex known colloquially as "San Joaquin fever," "valley fever," "desert fever" or "desert rheumatism."

This first reported epidemic of primary coccidioidomycosis involved 7 out of 14 Stanford University students and faculty members. On the afternoon of April 26, 1940 this group of 10 graduate and undergraduate students together with 4 faculty members left the Stanford campus on a biology field trip to San Benito County, Calif.

San Benito County is 100 miles southeast of San Francisco astride the Coast Range Mountains. While many parts of the county are well watered and produce diversified crops, those portions on the eastern slopes are quite dry. The Panoche Valley, separated from the San Joaquin Valley only by a low range of hills, averages but 8 inches of rain a year. In the spring the region is suitable for grain raising and grazing, though in the hot parched summers and

autumns the country is sere. The first night the party camped near the highway south of Hollister, the county seat. The following day was devoted to scouring the hills and valleys and collecting a variety of specimens: insects, arthropods, reptiles, flowers and plants. The night of April 27 was also spent in the open in the San Carlos Mountains, part of the Coast Range. On the following day the group returned to Stanford University.

On May 6, O. C., a graduate student aged 21, felt feverish and weak but had little malaise. He tried to overcome his indisposition with strenuous workouts. However, his illness grew worse and on May 8 he reported to the Men's Health Service. Because of a temperature of 103 F. he was hospitalized by one of us. A roentgenogram of the chest, taken because of some suspicious "tinkles," revealed multiple circumscribed densities. Various diagnostic tests including blood cultures, sputum examinations and cultures, serologic tests and coccidioidin tests were performed but failed to reveal the cause of the illness, although 10 mg. of coccidioidin produced some erythema with induration.

In the meantime five of the other students became ill: R. R. also on May 6, A. S. on May 7, D. S. and W. G. on May 10 and B. M. on May 11. All showed roentgenologic evidence of pulmonary consolidation or other pathologic process. Tests with 0.1 mg. of coccidioidin on 2 (A. S. and D. S.) were faintly positive and on B. M. strongly positive. However, examinations of the sputum were incomplete and the cause of the epidemic remained unknown.

The condition of all except the first patient (O. C.) gradually improved. He failed to respond to treatment, continued to have a high fever and his roentgenograms appeared worse. On May 24 he was moved to the Stanford University Hospital in San Francisco for further diagnostic study. A test with 0.1 mg. of coccidioidin was repeated on May 26 and produced definite induration measuring 12 by 12 mm. in twentyfour hours. Gastric lavage was performed the day that the coccidioidin test was seen to be positive and a few suspicious spherules were seen. (Coccidioides immitis

This investigation was supported by a grant from the Rosenberg Foundation to the Stanford University School of Medicine.

From the Men's Health Ser (Dr. Ruth T. Smith) and the Department of Stanford University School of Medicine, nith).

1. Gifford, M. A.: San Joaquin Fever, Annual Report Kern County Health Department for the Fiscal Year July 1, 1935 to June 30, 1936, pp. 22-23. Gifford, M. A.: Buss, W. C., and Douds, R. J.: Data on Coccidioides Fungus Infection, Kern County 1901-1936; Annual Report Kern County Health Department for the Fiscal Year July 1, 1936 to June 20, 1937, pp. 39-54. Dickson, E. C., and Gifford, M. A.: Coccidioides Infection (Coccidioidomycosis), Arch. Int. Med. 62: 853-871 (Nov.) 1938.

2. Dickson, E. C.: Valley Fever, California & West. Med. 47: 151-155 (Sept.) 1937. Dickson, E. C.:

11: 1362-1364 (Oct. 8) 1938. Dickson S. Smith, C. E.: The Epidemiology with S. Smith, C. E.: The Epidemiology Health 20: 600-611 (June) 1940.

4. Gifford, M. A.: Coccidioidomycosis, Kern County, Annual Report (Figure 1) 1940.

4. Gifford, M. A.: Coccidioidomycosis, Kern County, Annual Report (Figure 2) 1939. P3-79.

5. Stewart, R. A., and Meyer, K. F.: Isolation of Coccidioides Immitis from the Soil, Proc. Soc. Exper. Biol. & Med. 29: 937-938 (May) 1932.

^{6.} A description of the roentgen findings on our students has been reported by R. A. Powers and D. J. Starks in Radiology 37: 44-453 (Oct.) 1941, in an article entitled Acute (Primary) Coccidioidemycuis: Roentgen Findings in a Group "Epidemic."

was subsequently proved by cultures and animal inoculations.) Fluoroscopy and roentgenograms on May 27 revealed that a cavity had developed in one of the consolidated areas. Moreover precipitin and complement fixation tests on his serum were positive for coccidioidal infection.

After the diagnosis of active coccidioidal infection was established, blood was drawn for sedimentation and precipitin tests from the other members of the expedition who had symptoms. Specimens of sputum were collected from all who could furnish any. Coccidioidin tests were repeated on most of them.

On June 4 all 13 of the group who were still on the university campus (O. C. was in the Stanford University Hospital) were assembled. Histories were taken of the movements of each person while on the field trip

results. Three others of the faculty group had positive coccidioidin reactions but negative precipitins, normal sedimentation rates and entirely normal blood pictures. One (Professor A.) had taught for some time years before in Rosedale near Bakersfield in the San Joaquin Valley, where Coccidioides is endemic. Professor W., also with a positive coccidioidin reaction, had taught near Bakersfield at McFarland. While he was in the San Joaquin Valley, he had a severe respiratory illness which was diagnosed tuberculosis and was sent to a sanatorium for several months. However, tubercle bacilli were never recovered from his sputum and his illness may well have been coccidioidal. Miss T., also with a positive coccidioidin test, had made many field trips in the San Joaquin Valley and in San Benito County. She recalled no respiratory or other "flulike" illness.

Clinical History of Students and Faculty Members Making Up Field Trip

			82	***		···		Sy	mpto	ms				Coccidi	oide:	Coccidio s Test	oidin	re.	Bloc	od Chan	iges	
Name	Sex	Present at Rattle- snake Hole	Previous Contact with Endemic Areas	Incubation Period	Cough	Pleurisy	Fever	Nightsweats	Malaíse	Henduche	Backache	Anorexía	Weakness	Days After Case Exposure		s Test Days fi Expos	Positive and	Serologie Tests (Pre cipitin and Comple- ment Fixation)	Sedimentation Index (Cutler)	Maximal White Blood Cells	Maximal Rosino. phils	Roentgeno- graphic Changes
0. C.	♂	+	?	9	+	±	+	+	土	+	+	+	+	30 to 45	4		26	+	26	17,700	8%	+
A. S.	ç	+	0	10	+	+	+	+	+	+	+	+	+	42	+	Faint +	35	+	23	20,550	5%	÷
W. G.	₫	+	0	13	+(	"Tiglit ness")	+	+	+	+	0	+	+	33		••	38	+	20.5	15,000	5%	±
B. M.	Ç	+	0	14	+ (	"Tight- ness")	+	0	+	+	+	+	+	33		••	27	+	23	15,800	670	+
R. R.	Ş	+	0	9	+	+	+	+	+	+	+	+	+	33	+		33	+	14	11.700	10%	+
D. S.	Ş	+	0	13	+	+	+	+	+	÷	Neck	+	+	33	+	Faint +	38	+	23	11,000	8%	+
J.B.	Q	+	0	Not definite	<u>±</u>	0	0	0	0	0	0	0	G	43			33	+	13	12,200	6%	+
Miss T.	ō	+	+	0	0	0	0	0	0	0	0	0	0	33		••	39		2.5	8,400	270	Fluoroscopy negative
Dr. W.	♂	+	+	0	0	0	D	0	Ð	0	0	0	0	` 33			39	****	1	G,400	50%	
Prof. A.	₫.		+	0	0	0	0	0	0	0	0	0	0	33			39		6	7,600	2%	**
J. G.	ð		0	0	0	0	6	0	0	6	0	0	0	33	****	34	0	•••	6	8,500	1%	Slight accentua tion of broncho vaccular shad- ons at right base
H. W.	ď		0	0	0	0	0	0	0	0	0	0	0	33		39	0		2	4,100	276	***
B. H. Mrs F	ð		0	0	0	0	0	0	0	0	0	0	0	33		39	0	-	5	10,700		l'hioroscopy lowed heavy root markings; x-ray entirely normal
Mir F	¥			υ	0	Đ	b	0	0	0	0	0	0	33		39	0		6 (80')	10,650	No di feren tini coun	

and of any subsequent illnesses. Coccidioidin tests were performed on those who had not yet been tested, blood counts made, erythrocyte sedimentation rates determined and blood removed for precipitin tests. More sputum cultures were also obtained.

On the basis of the positive coccidioidin reactions, positive precipitin tests, rapid sedimentation rates, characteristic blood counts and densities in their roentgenograms, all 6 students who had been ill were judged to have had primary coccidioidal infections. Four of the group had Coccidioides immitis recovered from their sputums. One other student, J. B., felt well but had a positive reaction to 0.1 mg. of coccidioidin, a positive precipitin test, accelerated sedimentation rate and cosinophilia, bringing the total to 7 infections. The remaining 3 students had been well, gave negative coccidioidin reactions, had normal sedimentation rates and normal blood counts (one had 8 per cent cosinophils) and their serums did not show precipitins. One of the faculty group (Mrs. F.) similarly gave negative

One of the most interesting aspects of the epidemic was the suggestion as to where the fungus could have been inhaled. The nature of the epidemic suggested that the infected students must have had a common massive exposure which the 4 negative to coccidioidin did not experience. The 3 coccidioidin positive faculty members might or might not have been exposed, previous studies having indicated that one infection apparently results in an immunity.

The way the groups traveled in their automobiles precluded dust from the road as the cause, since uninfected students were in each auto load. At night the blankets were laid directly on the ground, but the infections were so scattered that no common exposure could have been possible. The manner in which the groups worked in their specimen hunting obviated any possibility of a suitable exposure except for one occasion: When the expedition was in the Panoche Valley on April 27 it stopped along a creek bank to collect flowers and explore an abandoned quick-silver mine. Some one

observed a rattlesnake which crawled down a ground squirrel hole. O. C. began digging industriously. Later he recalled the occasion because the dust was so dense and he was in the thickest of it. He was assisted or surrounded by all the other students who were infected, and also by Professor W. and Miss T., who, it has been shown, apparently had experienced a previous infection with Coccidioides. However, the 4 giving negative reactions to coccidioidin (Mrs. F. and 2 of the 3 students) were not anywhere near the digging, and the third student, W., was not close at hand either.

Thus circumstantial evidence strongly implicated the vicinity of the rattlesnake hole. In August 1940 one of the recovered students guided one of us back to the spot. Specimens of the soil were collected and from them Coccidioides immitis was recovered.

#### COMMENT

Not only is the mechanism of coccidioidal infection verified but also is resistance to exogenous reinfection substantiated. The incubation periods, nine to fourteen days, are likewise in accordance with the range previously established.³ Among the cardinal symptoms and signs summarized in the accompanying table, the pain or "tightness" in the chest is the most useful in a differential diagnosis. It is to be noted that none of the patients had erythema nodosum or multiforme.

#### REPORT OF CASES

Case 1.—O. C., a male graduate student aged 21, was born in San Francisco and lived there all his life except that from 1934 through 1936 he lived in San Mateo and since 1936 he has been at Stanford (Palo Alto), and also during some summer vacations. In the summer of 1938 he worked on an Associated Oil tanker on the Sacramento and San Joaquin rivers. He did not go inland farther than 2 miles. In the summer of 1939 he visited friends in Fresno on week ends. He has also made occasional visits around Tracy and a few trips through the San Joaquin Valley.

On May 6, 1940, nine days after returning to Stanford from his rattlesnake digging in San Benito County, he suddenly felt weak and feverish. However, he had no actual malaise and attempted to throw off the illness with a vigorous workout followed by a half mile swim. The following day, May 7, the fever persisted, his appetite left him and a severe backache developed which lasted until the next day. He also began to cough and the coughing continued for a month and a half. On this second day of illness, despite his feeling of weakness, he played football for two hours. On awakening May 8 he felt "jittery" and so weak that he could hardly climb out of To the other symptoms was added a severe frontal headache; at last admitting he was ill, he consulted the Men's Health Service. When the patient's temperature was found to be 103 F. he was sent to the Palo Alto Hospital under the care of one of us (B. D.). That night he had a drenching nightsweat, and severe nightsweats persisted until the last week in June. The day after entry into the hospital severe "backache" recurred. The previous attack had been unaffected by breathing, but this time breathing and coughing exaggerated it, suggesting pleurisy. Suspicion having been aroused by "a few faint tinkles," a roentgenogram was obtained. It revealed multiple circumscribed areas of increased density. Sulfapyridine was given for five days. The temperature dropped but the development of nausea and a dermatitis necessitated the discontinuance of this therapy. When the fever recurred sulfanilamide was tried. The fever continued and the dermatitis returned, so the drug was stopped. Blood cultures, serologic tests, sputum examinations and cultures being persistently negative and coccidioidin tests being interpreted as equivocal, the patient was transferred to Stanford University Hospital in San Francisco on May 24. Sulfathiazole treatment was initiated (1 Gm. every four hours) but discontinued after three days and a total dosage of 47 Gm. because of increase in temperature

(to 103.6 F.), malaise, generalized arthralgia and dermatitis. Meanwhile, on May 26 the coccidioidin test with 0.1 mg. of coccidioidin became positive (12 by 12 mm.). Coccidioides immitis was recovered from stomach washings made the same day and repeatedly from sputum specimens obtained over a period of two weeks, the last successful attempt being on a specimen obtained June 11, more than a month after onset of the illness. Precipitin and complement fixation tests for Coccidioides were also positive. Roentgenograms and fluoroscopy on May 27 revealed a cavity in one of the consolidated areas. However, the defect rapidly closed. The blood count on May 28 showed 16,100 white blood cells with 68 per cent polymorphonuclear neutrophils, of which 36 per cent were banded cells, 8 per cent eosinophils, 2 per cent basophils, 21 per cent lymphocytes and 1 per cent monocytes. There were 4.91 million erythrocytes and 13.72 Gm. hemoglobin (80 per cent Sahli). The erythrocyte sedimentation rate was 26 mm. in sixty minutes (Cutler). After the sulfathiazole was discontinued his only complaints were fever, nightsweats and cough. The cough gradually diminished during the early part of June and by June 21 had ceased entirely. At the same time nightsweats stopped and by the end of the month his temperature remained normal all day. He returned home July 3 but was kept in bed until August 1. Then, since he had continued afebrile and his sedimentation index was only 7.5 mm. in sixty minutes (Cutler), he was gradually allowed up. He was permitted to return to Stanford in the latter part of September and carried his full research load without ill effect. Regression of the pulmonary densities as revealed by roentgenograms continues, though slowly, and no cavities are discernible. His sedimentation rate is consistently 1 mm. in one hour (Cutler's method).

CASE 2.—A. S., a female sophomore student aged 20, born in Germany, moved to Wisconsin in 1927 and to California in 1934. She remained in the region around San Francisco Bay and her only contact with the San Joaquin Valley was on two trips en route to other parts of the state.

On May 7, 1940, ten days after participating in the rattlesnake digging, she reported to the Women's Health Service with a complaint of backache radiating to the right side of the chest, relieved by infra-red light treatment. On May 8 she had fever and nightsweats with some generalized aching. The third day, May 9, the backache and pain in the right side of the chest recurred with increased severity, and some discomfort was noted in the left side of the chest. These symptoms were accompanied by a nonproductive cough, anorexia and severe frontal headache. Taping reduced her discomfort slightly but infra-red treatment made it worse. Her temperature was 100.6 F. and she entered Palo Alto Hospital under the care of one of us (R. S.). There were no physical abnormalities, but roentgenograms of her chest on the day of entry revealed a rounded opacity in the parenchyma of the lung opposite the right hilus. The total white count was 20,550 with 86 per cent polymorphonuclear neutrophils, 9 per cent lymphocytes, 2 per cent monocytes, 3 per cent eosinophils (subsequently rising to 5 per cent; shown in table). The hemoglobin level was 80 per cent Sahli with 4,650,000 erythrocytes.

Sulfanilamide therapy was started the day of entry and 515 grains (34 Gm.) was given within the next ten days without appreciable effect. The pain in the chest cleared in two days but the anorexia, headache and dry cough persisted. On May 10 a rash resembling tinea corporis appeared on the buttocks but disappeared in two days after local application of tincture of jodine.

The temperature reached a maximum of 103 F. on May 10 and dropped thereafter. It persisted between 99 and 100 F. until June 1. On May 22 she was discharged from the hospital. Sputum cultures made while she was hospitalized yielded only a yeast. A coccidioidin skin test (0.1 mg.) was "faintly positive" on May 19. When repeated on May 29 the same test was strongly positive. Serologic tests on blood drawn June 1 and repeatedly thereafter indicated active coccidioidal infection. Although initial cultures were negative, Coccidioides immitis was recovered in the medical school public health laboratory by means of guinea pig inoculation of treated sputum collected June 6 and June 9. Anorexia persisted until June 1, and tought

and headaches lasted until June 18. Some weakness continued throughout the summer, but by September she felt quite well and had regained the 12 pounds (5.4 Kg.) that she had lost during her illness. Roentgenograms showed gradual clearing of the density. She remained well during the ensuing year.

CASE 3.—W. G., a male graduate student aged 24, was born in Ohio and lived there until he came to Stanford in October 1938. His only contact with the San Joaquin Valley was one trip along Highway 99 en route to Los Angeles.

On May 10, 1940, thirteen days after participating in the rattlesnake digging, he began to cough, lost his appetite, felt feverish and complained of a frontal headache and a sense of oppression in his chest without actual pain. A "tightness" in his chest remained for only thirty-six hours and malaise was mild and also transient. An occasional nonproductive cough persisted until June 13. The headache continued for only three days. Continued anorexia caused him to lose 6 pounds (2.7 Kg.). During the latter part of the first week of his illness nightsweats were so severe as to dampen his pajamas. The duration of the fever was unknown, but it must have been for at least one week. On May 20 he was called in by the Men's Health Service for a check-up which was being made of all members of the expedition. His temperature was found to be 100 F., so he was sent to the hospital for roentgen and laboratory examinations. The roentgenograms showed an increase in lung root density but no definite areas of infiltration. After three weeks of illness, he noted a considerable chilliness on arising but had no real chills at any time. There was no backache, sore throat or nervousness other than pruritus. Instead of having insomnia, he was tired and slept about sixteen hours a day for the first three days of the attack. On June 5 his appetite was well on the way back but was still not normal. Outside of occasional cough and extreme fatigue no other symptoms were present. A coccidioidin test with 0.1 mg. of coccidioidin on June 4 measured 30 by 30 mm. By the time he was asked to collect his sputum on May 30 scarcely any could be raised. Coccidioides immitis was not recovered. However, his sedimentation index of 20 mm. (Cutler) and his blood count were supporting evidence, as shown in the table. Serologic reactions of his blood, both positive complement fixation and heavy precipitins, were characteristic of primary coccidioidal infection. He rapidly regained his strength. By June 23 he felt fine and remained well during the ensuing year.

CASE 4.—B. M., a female senior student aged 22, was born in Washington and came to California as a Stanford freshman in October 1936. Her only contact with the San Joaquin Valley was on occasional trips to Yosemite and Los Angeles. Only once while on such a trip did she stop overnight in the valley.

On May 11, fourteen days after the rattlesnake excavating and while in Sacramento en route to Lake Tahoe, she had a sudden onset of chills, then felt hot and completely lost her appetite, all of which she attributed to the heat. These symptoms continued and when she reached Tahoe she was short of breath, a condition she attributed to the altitude. following day she began to ache all over and had a severe frontal headache. The fever and anorexia continued, and in addition she had diarrhea, vomiting and vertigo. Returning to Stanford on May 13 with severe backache, a temperature of 102 F. and a cough, her condition was diagnosed as possible measles and she was sent to the Palo Alto Hospital. Physical examination was entirely negative except for the elevated temperature and a generalized ("somewhat urticarial" according to her attending physician) eruption on her legs and thighs, with a few lesions on her back. The lesions itched and were diagnosed hives. They lasted four to five days and recurred once again on May 25. The malaise became worse and she noted tightness throughout the chest. It was not actually pleurisy but it caused her to have shortness of breath. She remained in the hospital five days and then, with the cough diminished and fever ended, she was discharged. However, the malaise, insomnia, loss of appetite and headache continued, as did the nonproductive cough. Small blisters appeared on the palms of her hands May 17 and remained for three days, after which the skin peeled. The appetite began to return after

two weeks, the weight loss having been at least 5 pounds (2.3 Kg.). Headaches stopped May 25. When interviewed June 5, she still had this sense of oppression in the chest, considerable dyspnea, periods of backache and a dry cough. She tired readily and did not have her customary energy. A coccidioidin test with 0.1 mg. of coccidioidin performed May 24 measured 50 by 90 mm. By the time she was asked to collect her sputum, May 30, scarcely any could be raised. Coccidioides immitis was not recovered. However, her sedimentation index of 23 mm. (Cutler) and her blood count were supporting evidence. Roentgenograms taken May 24 showed two areas of density beyond the left lung root and at the left base. These findings assume even more significance in view of the considerable clearing by June 12 and complete clearing by August. Serologic reactions of her blood, both positive complement fixation and heavy precipitins, were characteristic of primary coccidioidal infection.

The cough continued until June 12. When seen June 21 she stated that only in the last two or three days had her appetite been good. She still tired easily and became short of breath but otherwise felt all right, though not as full of "pep" as usual.

During the summer she was very quiet. Her roentgenograms cleared (as previously noted) and the lost weight was regained by August. By September 30 she felt fully recovered. She carried a heavy schedule during the year and felt entirely well.

CASE 5.—D. S., a female junior student aged 20, was born in San Mateo, Calif. She resided there two years, then went to Sacramento for nine years and lived continuously in Berkeley thereafter (nine years) until she started to Stanford in October 1937. She was in the San Joaquin Valley in 1937 en route to Death Valley and once took a field trip to Yosemite by way of Los Banos.

On May 10, 1940, thirteen days after the rattlesnake episode, she had an abrupt onset of pain in the neck and anterior part of the chest, cough, loss of appetite and generalized aching. She also felt feverish. The fever and aching persisted for three days and on the third (final) day she went to the Women's Health Service, where she was diagnosed as having myositis. The pleurisy was fairly severe, first on the right side and then beneath the breast bone, and remained for one week. It then disappeared and recurred twice, the last time being May 26. Both recurrences were for only a couple of days with generalized pain. The severe pain in the neck also lasted approximately one week. The cough, accentuating the pain in the chest, was persistent and produced little sputum. After three weeks it gradually abated and at the same time her appetite began to improve. No loss of weight was detected. The patient had severe nightsweats on the night of May 12 but noted them only on that occasion. Her headache, which began the day after onset of her condition, was located on the right side of the head and continued throughout the summer. The only cutaneous lesions that developed were hives, which appeared over the buttocks at the onset and which recurred June 4. These cutaneous lesions itched and were not at all like crythema

A coccidioidin test (0.1 mg.) performed May 24 was equivocal. Repeated June 4, it was definitely positive (10 by 10 mm.). Coccidioides immitis was recovered at the medical school by culture of sputum collected May 30. Roentgenograms, taken on May 24, showed heavy lung root markings with density spreading into the right upper lobe. By June 12 there was considerable clearing of this density, and a roentgenogram taken October 9 showed complete clearing except for a suggestion of lung root enlargement on the right. Her serologic tests were also characteristic of primary coccidioidal infection.

During the forepart of the summer she improved rapidly, but in the latter part of August there were three nights in which there were nightsweats. She tired readily but by the latter part of September, when the university reopened, felt quite well, having gained 12 pounds (5.4 Kg.). However, during the autumn quarter she studied hard and found that she lacked her former strength. She lost 22 pounds (10 Kg.) during this period. She had a mild attack of "flu" in December with a normal recovery. A year after her illness she felt entirely well.

Case 6.-R. R., a female sophomore student aged 19, was born in Oklahoma. She never lived in Texas or Arizona but once stayed two weeks in Santa Fe, N. M. She first came to California when she entered Stanford in September 1939. At no time had she been in the San Joaquin Valley.

On May 6, 1940, nine days after witnessing the rattlesnake digging, the patient felt feverish, ached all over, had a severe headache and backache, pain in the left side of her neck and left side of the chest, completely lost her appetite, was nauseated and vomited three times. That night she had the first of a month long series of nightsweats. The symptoms did not abate but grew worse, and after two days (May 8) the pain in the back and chest was so severe that she reported to the Women's Health Service. Physical examination failed to disclose any positive conditions. She had been swimming the day prior to the onset and her condition was diagnosed as strained muscles from diving. She was given heat treatment and was The taping partially relieved the chest pain, which was accentuated by breathing, but the heat only increased the discomfort. A slight nonproductive cough which began on May 7 became much more severe on May 11, but its persistence was matched by the scantiness of the sputum. A small cutaneous lesion which appeared on her chin May 9 was diagnosed as either impetigo or poison oak and cleared after nine days. Insomnia was another feature of the illness. After eight or nine days the pleurisy and backache diminished but the other symptoms persisted for three weeks during which time the patient lost 9 pounds (4.1 Kg.). On June 1 she still had an evening temperature of 100 F., but it then abated along with her malaise and anorexia. The cough and headaches persisted for another week.

On May 30, 0.1 mg. of coccidioidin intracutaneously produced a reaction measuring 60 by 80 mm. with vesiculation of 10 by 10 mm. From sputum obtained May 30 and examined at the medical school, Coccidioides immitis was recovered both by cultures and by animal inoculation. Roentgenograms taken May 27 showed an area of patchy density near the periphery in the right costophrenic angle and a similar area of homogeneous density under the second right anterior interspace. These densities had cleared only slightly by October 9. The accelerated sedimentation index (14 mm. Cutler) and 10 per cent eosinophils were typical conditions and the serologic reaction was characteristic of primary coccidioidal infection.

She was exhausted by slight exertion until the middle of June (five weeks after the onset). During the forepart of the summer her strength gradually returned, but in the middle of August she began coughing and the left base of her chest hurt for six days. Then the pain gradually departed and by the middle of September she felt fairly well except for frequent headaches. In the autumn quarter she grew steadily more tired and her geology field trips exhausted her. In December she had an attack of influenza and during the rest of the school year continued to feel below par. However, her sedimentation index remained normal (under 5 mm. Cutler) and her precipitin and complement fixation tests for Coccidioides became negative and remained so, indicating that' the infection was quiescent.

CASE 7 .- J. B., a female senior student aged 21, was born in Huntington Park, Calif. She had lived there all her life with the exception of four school terms at Stanford beginning in October 1936. There was no history of residence in the San Joaquin Valley but of occasional trips through the valley on Highway 99. Usually she traveled along the coast on High-

There was no illness after the return from the field trip except a slight cough with an indefinite date of onset (around May 20) and subsequent to a hayride. After the onset of the cough, she also had headache. However, there was not present loss of appetite or of weight, or generalized aching, fever, pleurisy, nervousness or insomnia. During the entire spring quarter she did not feel her customary "pep," but there had been no significant drop after the San Benito County trip.

A coccidioidin test (0.1 mg.) performed May 30, 1940 was strongly positive, measuring 60 by 80 mm. Although her slight cough was nonproductive, sputum was collected June 9 and June 14, but Coccidioides immitis was not recovered.

roentgenogram taken May 27, however, showed a peribronchial density at the right base, which had disappeared by August 21. Moreover, an accelerated sedimentation index (13 mm. Cutler) and 6 per cent eosinophils were additional corroboration of coccidioidomycosis. Finally, her serologic reaction was characteristic of primary coccidioidal infection.

#### SUMMARY

Seven out of 14 university students and faculty members were infected with Coccidioides immitis on a field trip to a region adjacent to the San Joaquin Valley. All 7 and 2 of the others who apparently had been immunized by previous infection were subjected to a heavy dust exposure. The fungus was recovered from the soil which had been the source of the dust.

The infections of 6 of the 7 victims were accompanied by moderately severe symptoms which lasted from three to six weeks, but all patients recovered without the development of coccidioidal granuloma.

## A SURVEY OF COCCIDIOIDOMYCOSIS AT CAMP ROBERTS, CALIFORNIA

ROBERT M. SHELTON, M.D. 1st Lieutenant, Medical Corps, U. S. Army CAMP ROBERTS, CALIFORNIA

In the early months of the development of Camp Roberts, among the many cases of acute respiratory illness receiving treatment at the Station Hospital. 2 cases of primary coccidioidomycosis were discovered. Camp Roberts lies on the western slope of the Coast Range Mountains of California, separated from the San Joaquin Valley by that range, and since this area had not previously been known to harbor the disease as an endemic focus a survey was undertaken to determine the extent of the disease locally, the results of which survey constitute the body of this report.

## INTRODUCTION AND HISTORICAL DATA

Dr. Emmet Rixford of San Francisco reported in 1894 a case of malignant ulcer of the skin caused by an agent which he and Gilchrist an named Coccidioides. This was the first report of this disease entity in the American literature, though the same disease had apparently been described in 1892 by Posada in Argentina. The infecting agent was a tiny spherule which multiplied by endosporulation and was capable of producing an ulcer if rubbed into the abraded skin of a dog; it was named Coccidioides because of its resemblance to Coccidia of animals. At first thought to be a protozoan, it was reported in 1900 by Ophuls and Moffitt 3 to be a fungus, readily cultured on various mediums. The disease coccidioidal granuloma proved to be a serious disorder, involving not only the skin but also many of the other viscera and leading to a fatal outcome in 50 per cent of the cases,4

By 1936 450 cases of coccidioidal granuloma had been reported in California, constituting the majority of all the cases on this continent. A striking feature was that most of the patients had lived a longer or shorter period of their lives in the San Joaquin Valley of California. The disease had been discovered in animals, as well as

^{1.} Rixford, Emmet: A Case of Protozoic Dermatitis, Occidental M. Times 8: 704-707 (Dec.) 1894.
2. Rixford, Emmet, and Gilchrist, T. C.: Two Cases of Protozoic Coccidental) Infection of the Skin and Other Organs, Johns Hockins, Rep. 1: 209-268, 1896.
3. Ophilis, Wilhelm, and Moffitt, H. C.: A New Pathogenic Med. Philadelphia M. J. 5: 1471-1472 (June 30) 1990.
4. Beck, M. D.: Coccidental Granuloma, California State Department of Public Health Bulletin 57, June 1931.

in man, and pathologic investigation showed that the probable port of entry in most cases was the respiratory tract, with involvement of tracheobronchial and mediastinal lymph nodes, much the same as in tuberculosis. In fact, the mimicry of tuberculosis was striking in all phases and progress of the disease.

An important further step in the understanding of the infection was made by Gifford 5 and Dickson 6 during the period 1936-1937, when they proved that Coccidioides was the cause of a syndrome known colloquially in the San Joaquin Valley of California as "Valley fever" or "San Joaquin fever." This syndrome, previously well known but not understood, was characterized by the development of erythema nodosum and attendant systemic symptoms much like those of influenza. Coccidioides was cultured from the sputum of many patients and all were found to react positively to a cutaneous test with coccidioidin, a substance closely fever" was associated with the initial infection with Coccidioides and is the analogue of "childhood" tuberculosis. The name "primary coccidioidomycosis" was given to this symptom complex by Dickson.

Since then it has become clear that a majority of the residents of the San Joaquin Valley eventually become infected (70 to 80 per cent give positive reactions to the coccidioidin skin test after ten years' residence); that 2 to 5 per cent of those infected have the erythema nodosum syndrome known as valley fever,7 whereas the remaining 95 to 98 per cent may be entirely asymptomatic but generally have respiratory symptoms frequently confused with influenza; that the granuloma or secondary stage (like "adult" tuberculosis) is, fortunately, quite rare, and that the San Joaquin Valley is not the only endemic focus but shares its stigma with parts of Arizona and Texas. Argentina and possibly even Italy and other continental areas had been implicated previously. Exactly what percentage of those exposed develop skin sensitivity to coccidioidm or manifest the symptoms of primary coccidioidomy cosis is not known. Nor is there any exact information as to the reservoir from which the fungus comes to enter the human being, but it is presumed from the high correlation of frequency of new cases with dryness of the atmosphere that the soil harbors the fungus and gives it up as dust that may be inhaled. There is no information as to what percentage of those infected eventually have the dread granuloma, but its infrequency can be seen by the fact that while a large percentage of the population of the San Joaquin Valley (estimated population 750,000) is apparently infected with Coccidioides (sensitive to the coccidioidin skin test), the Department of Public Health of the State of California s reports an average annual incidence of only 46 new cases of coccidioidal granuloma. Susceptibility to the development of the granuloma is relatively high among the dark skinned races, and it is of note that cases of the granuloma show a much lower degree of skin sensitivity to coccidioidin than do those who have recovered from the initial infection without apparent residual disease

## MATERIAL AND TECHNIC

This report is based chiefly on the results of two skin test surveys made three months apart, the two surveys being made on the same group of persons, with a view to finding in how many instances the test became positive during the three month interval. In addition, there are reports of 3 cases discovered in the hospitalnot a part of the survey.

Coccidioidin supplied by Dr. C. E. Smith of Stanford University School of Medicine was diluted with saline solution to a concentration of 1:1,000. While it is conceivable that 1:100 dilution would show sensitivity occasionally where 1:1,000 would give a negative or questionable response, it has been found that for practical purposes 1:1,000 is sufficient. The same bottle of undiluted coccidioidin was used as the source in the two series of tests, being kept during the interval in a refrigerator.

It cannot be said that a precisely constant amount of the antigen was injected in each patient. The necessity of doing the procedure with minimum delay required a special "mass attack" technic, and the amount of fluid lost in the hub of the needle and in expelling air bubbles prevented accurate measurement. The amount injected was determined by gross inspection of the wheal produced and averaged 0.05 cc. In no case was it more than 0.10 cc, nor less than 0.03 cc. It is my observation that the variation in amount, within the limits men-

TABLE 1 .- Results of Coccidioidin Skin Tests

Then A took June Dt able	Number
First test, June 21, 1941 Men tested Positive	888 11
Second test, Sept. 13, 1941  Men tested (less positives from first test)  New positives .	73G 14

tioned, is not significant except perhaps in distinguishing slight variations in the grade of the reaction. In other words, the positive reactors will appear in response to 0.03 cc. as surely as to 0.10 cc. but may be graded "one plus" with the former and "two plus" with the latter.

The two series of tests were made on a battalion of men plus a few men from three other battalions newly arrived at Camp Roberts. The first test series was done June 21 on a battalion of troops that had arrived between June 12 and June 15. The troops were gathered from the Middle West-Illinois, Missouri, Nebraska, Arkansas and Texas-and no attempt was made to list them by residence except for those who reacted positively to the first test.

The second series of tests was made on the same men on September 13 after three months of training in and about Camp Roberts and just before their transfer to other camps.

All reactions were read at from forty-four to fortyeight hours and were recorded thus:

- ± definite induration and erythema but less than 1 cm. in
- + induration of 1 cm, in diameter,
- ++ induration of 1 cm in diameter plus flare of erythema of 1 cm. or more,
  - +++ induration of 2 cm. or more.
  - ++++ resiculation

Those reacting positively to the second test who were previously demonstrated to be nonreactors were questioned regarding symptoms during the three month

⁵ Gifford, M.A. San Joaquin Fever, Annual Report of Kern County Health Department for the Fiscal Year July 1, 1935 to June 30, 1936, pp. 22 23

pp 22 23
6 Dickson, E. C. Valley Fever, California & West Med. 47: 151155 (Sept.) 1917. Dickson E. C., and Gifford, Myring Ada. Coccidioides Intection (Coccidioidomycosis), Arch. Int. Med. 62: 853-871
(Nov.) 1938. Dickson, E. C.: Primary Coccidioidomycosis, Am. Rev.
Tuberc. 38: 722-729 (Dec.) 1938. Coccidioidomycosis, J. A. M. A. 111:
162-1364 (Oct. 8) 1938
7. Smuth. C. E. Epidemiology of Actual Capital State of California
8. Report of Bureau of Epidemiology,
State of California.

interval, and roentgenograms of the chest were made. All were carefully questioned regarding visits to other localities during this time.

In some cases, specimens of the blood were sent to the Department of Public Health and Preventive Medicine of the Stanford University School of Medicine in San Francisco for serologic tests. Under the supervision of Dr. C. E. Smith the specimens were examined for the presence of precipitins and for complement fixation according to technics described elsewhere. In 1 case, sputum was forwarded to Smith for culture and animal inoculation, since the final determination of the nature of the fungus depends on its ability to produce the typical reaction in animals.

The author wishes to express appreciation for the invaluable aid given by Dr. Smith and also by Lieut. Col. William Levin of the Sanitary Corps, Lieut. Col. Warfield W. Lewis of the infantry, Private Dernbach and others. Each of these rendered service without which this work would have been entirely impossible of achievement.

#### RESULTS OF SURVEY

The first series of tests was accomplished on 888 men. Eleven were found to give a positive reaction, though they had been at Camp Roberts too short a time to have picked up the disease here (tables 1 and 2). Of these positive reactors, 1 had lived only in Montana and Idaho, 1 had lived only in Arkansas not far from Texas, 6 had lived in Texas and 3 had lived in the San Joaquin Valley of California. Texas and California are already well recognized endemic foci of the disease, and the reaction in the first case suggests the possibility that Montana or Idaho may harbor the disease.

The second series included only 736 of the 877 who gave a negative reaction to the first test, because many of the men were not available, being on leave or having been transferred. Actually, of the 11 found positive in the first test, 8 were retested and all reacted positively the second time. Of the 736 men in the second series, all negative to the first test, 14 gave positive reactions. In other words, 14 men proved to be nonreactors in June reacted positively in September. Three of these had visited in the San Joaquin Valley during their stay at Camp Roberts, 7 had been to Los Angeles or San

Table 2.—Previous Residence of Men Found Positive to Coccidioidin on Arrival at Camp Roberts

Case	Reaction	Past Residence in Known Endemic Areas
C. M S D S D I. C J. N L. G . R R K C J. R	+ +++ +++ ++ ++ ++ ++ ++ ++ ++	Bakersfield (Sun Joaquin Valley) Fresno (Sun Joaquin Valley) Eveter (San Joaquin Valley) Tevas Tevas Tevas Tevas Tevas Tevas Tevas Arkansas only Idaho and Montana only

Francisco and 4 had not left the vicinity of Camp Roberts more than a few miles, having gone to Salinas (1 case), Pismo Beach (1 case) and Paso Robles (2 cases) (table 3).

Of the 14 positive reactors, only 1, according to a check in the hospital records and answers to a questionnaire, had entered the hospital for any febrile or respiratory illness, though hospitalization is the routine procedure for any illness severe enough to prevent exercise of full duty. It is obvious that the onset of the

infection was not attended by the development of distressing symptoms in most of the cases.

All but 4 of the 14 felt that they had at one time or another during the three months had a bad cold or influenza, and 3 had noticed a cutaneous eruption—nonitching red spots that looked like the positive reac-

Table 3.—Trips to Other Localities Made by Men Developing Positive Reaction While at Camp Roberts

Visit to San Joaquin Valley	:	No. of Cases  3  4  3  1  1  1

tions to the skin test. None of these eruptions had been examined by medical officers, so their description had to be a yes or no response to a questionnaire which was sent to all positive reactors (see table 4).

Roentgenograms of the chest made September 16 on the 14 new reactors showed 1 case of pulmonary infiltration, a small area of light, uniform density much like the pulmonary manifestations in "childhood tuberculosis," and 2 cases with moderate enlargement of hilar lymph nodes. Check-up films of the 14 cases found on survey have not yet been made, and the results will be reported later.

## REPORT OF CASES

Although many patients with primary coccidioidomycosis are entirely asymptomatic and must be searched out with the aid of a skin test survey, a few are ill, with symptoms like influenza or a bad chest cold. It was one such typical case that called our attention to the presence of Coccidioides in this location. The clinical summary is presented herewith:

CASE 1 — H. D. S, a white man aged 23, entered the hospital April 29, 1941 complaining of a cold and cough for three days, headache for two days and chills and fever for one day. Except for a temperature of 382 C (100.8 F.), there was no abnormality apparent. The second day, the temperature went to 39.2 C. (1026 F.) and the cough was worse, but three days later the fever was gone, the patient felt well and he was returned to duty. Five days later, May 8, he reentered the hospital because of pain in the right side of the chest of three days' duration and persistence of the cough. The temperature was 37.9 C. (1002 F) and there were rales at the right apex. The fever, cough and chest pain subsided a little but were still present after five days, at which time the white blood cell count was 12,300, with 50 per cent neutrophils, 32 per cent lymphocytes and monocytes, 12 per cent eosinophils, and The possibility of the trouble being 6 per cent basophils tuberculous was considered and a roentgenogram of the chest was made, showing a fanlike area of increased density extending from the hilus to the right apex. In order to clarify the situation, a skin test with tuberculin was made and a coccid-After forty-eight ioidin test was done at the same time hours, the tuberculin test was negative, and there was a definitely positive reaction to the coccidioidin (1 cm. by 15 cm. induration and erythema). The most startling development was the appearance at this time of erythema nodosum, a crop of red indurated spots on the legs, which had actually started two days previously and subsided gradually in a period of five days The blood count was repeated, showing 10 per cent cosinophils, and a specimen of blood drawn June 7 was sent to Dr. C. E. Smith, who reported strong reactions to precipitm and complement fixation tests, "findings characteristic of moderately severe primary infection due to Coccidioides immitis." Clinically there was gradual improvement, a roentgenogram on June 6 showed almost complete resolution of the lesion previously noted and after a month of hospitalization and symptomatic therapy the patient was again returned to duty. No sputum culture was made. This man had lived in Nebraska prior to induction into the Army and had not been more than a few miles away from camp after his arrival here.

Another summary is presented to illustrate the severity of the symptoms in an occasional case and the difficulty in arriving at the proper diagnosis:

CASE 2.-E. R., a white man aged 24, entered the hospital Sept. 2, 1941 because of severe pain in the back which had appeared suddenly two hours previously while the patient was sitting at a table. For a few minutes he could hardly move, the pain was so severe, and he lost no time in getting to the hospital by taxicab. The pain was located in the lumbar region and was aggravated by respiratory movement or bending of the trunk. On entry there was evident pain and guarding of the muscles of the back, with impairment of the movements of respiration and bending of the trunk. There was no fever, the pulse rate was 88 and the blood pressure was 124 systolic and 80 diastolic. He was given sedatives and the clinical impression was that he suffered from an acute myositis secondary to chronic prostatitis. On the fourth day the temperature rose to 37.8 C. (100 F.), though the pain in the back had practically disappeared. Two days later the temperature was 38.3 C. (101 F.) and consultation was requested. In the next five days the temperature went gradually up to 40.7 C. (105.2 F.), with no symptoms except those of fever, and the patient was seen by eight different physicians, with diagnoses of pleurisy, pulmonary tuberculosis, pulmonary infarct, prostatitis, perforating ulcer of the duodenum, dissecting aneurysm, renal stone, bronchopneumonia, malaria, mediastinitis, undulant fever, typhoid, pyelitis and perinephric abscess. During this time he underwent lumbar puncture (the spinal fluid was normal) and catheterization (the urine was sterile); he was examined roentgenographically four times (no abnormal findings) and the following laboratory procedures were done: an electrocardiogram was made, a culture of the urine was taken, six routine urinalyses were made, six routine blood counts were made, the sputum was examined, a blood smear was examined for malaria, agglutination tests were done for evidence of undulant fever and for the typhoid-paratyphoid group and a stool culture was made. The red blood cells numbered 4,000,000 to 4,500,000 per cubic millimeter, the white blood cells 6,600 to 11,200 with from 56 to 80 per cent polymorpho-

Table 4.—Responses of "New Positive Reactors" to Questionnaire

Case	Reaction of Second Skin Test	Hospi- talized While at Camp Roberts	Bad Cold While at Camp Roberts	Red Skin Eruption Like Test	Results of Chest Roentgenograms Made Sept. 16, 1941
S. R.	+	No	Yes	Yes	Normal
J. F.	+	Yes	Yes	No	Normal
J. H.	++	Yes	Yes	No	Normal
W. J.	++	No	Yes	Yes	Hilar enlargement
н. к.	+	No	No	No	Hilar enlargement
W. M.	+	No	Yes	No	Normal
G. H.	++	No	Yes	No	Normal
J. M.	++	Yes	Yes	No	Normal
H. N.	-+-	No	No	No	Normal
I. W.	7	No	Yes	No	Normal
D. W.	+1++1+	No	No	Yes	Normal
11. 11.	7	No	Yes	No	Normal
н. Е.	++++	No	No	No	Pulmonary infiltra-
r. L.	÷	No	Yes	No	Normal

nuclear neutrophils and as much as 16 per cent eosinophils. All other tests were negative. On September 15, two weeks after entry, the clinical impression was that the disease was most likely tuberculosis of the pleura and hilar lymph nodes but possibly coccidioidomycosis, and a coccidioidin skin test was done. The response was brisk and violent, with vesiculation of the skin. Blood was drawn and sputum was collected for examination at Stanford, with a report of unusually strong and rapid precipitin reaction and positive complement fixation in the serum "characteristic of active coccidioidomycosis being well handled." From the sputum viable Coccidioides immitis

was recovered, proved by culture and animal inoculation. The patient made a complete symptomatic recovery and was discharged from the hospital three weeks after entry. It is noteworthy that he did not manifest erythema nodosum at any time. He had spent all his life in Alabama, had never been out of the state prior to induction into the Army and since coming to Camp Roberts had made one trip to San Francisco, none to the San Joaquin Valley.

One patient was seen in the hospital as presenting a dermatologic problem:

CASE 3.-E. O., a white man aged 22, entered the hospital May 26, 1941 because of red spots on his legs of two days' duration. The eruption was somewhat tender and caused his legs to feel swollen. He had been in the hospital two weeks previously for pain in the chest, aggravated by breathing deeply, associated with a fever of 38.3 C. (101 F.), and had been released after one week, at which time he was afebrile and asymptomatic. The cutaneous lesion was typical erythema nodosum and the probability that it was a manifestation of coccidioidomycosis was considered. A roentgenogram of the chest showed a small patch of infiltration in the base of the right lung, and there was eosinophilia (18 per cent). The eosinophils two days later were recorded as 13 per cent. A coccidioidin skin test with the usual 1:1,000 dilution gave a very weak response, and the test was repeated with 1:100 dilution, giving a strongly positive reaction. This weak response to the coccidioidin is very unusual, since patients with erythema nodosum are notorious in the vigor of the sensitivity of their skin. Serologic reactions on the patient's blood, done by Dr. Smith, were strongly positive.

The erythema nodosum cleared in ten days, leaving only a brownish discoloration. The chest symptoms were of no concern, and the patient returned to duty. He had lived in Minnesota all his life prior to coming to Camp Roberts and after his arrival here had been no farther away than San Luis Obispo.

#### COMMENT

The chief significance of the investigation here reported is the demonstration of the fact that coccidioidomycosis can be acquired in the environs of Camp Roberts, California, a hitherto unknown endemic focus. This fact has been proved by the finding of 14 persons who were known to have given negative reactions to the coccidioidin skin test on arrival here and positive reactions three months later. It might be said in criticism of this statement that (1) the positive skin test is not specific but may have developed in response to some factor other than the exposure to Coccidioides, (2) the proved exposure may have taken place before arrival at camp, as while traveling across the country, (3) the proved exposure may have been acquired after arrival here but while visiting in some nearby area such as the San Joaquin Valley. In refutation of these criticisms it must be pointed out (1) that the skin test has apparently been proved to be quite specific, as determined by its use over a period of years, (2) that, while it must be admitted that some of the men may have been exposed to the disease en route to Camp Roberts the possibility of this is slight and (3) that careful questioning regarding trips to other localities after arrival here demonstrates that in at least some of the cases the exposure must have been here. Three of the 14 had visited in the San Joaquin Valley, 7 had been to Los Angeles or San Francisco but had not been in the San Joaquin Valley and 4 had not left the vicinity of Camp Roberts more than a few miles, the actual far points being Salinas, Pismo Beach, Paso Robles and San Miguel.

By extrapolation, if it is assumed that the percentage of men found infected is uniform throughout the camp, it could be estimated that, of the 20,000 to 25,000 men here, from 400 to 500 acquired primary coccidioido-

mycosis between June and September of this year. Observations elsewhere indicate that the incidence of new cases is highest in the dry months, falling to almost nothing in the wet winter months, so that the number of cases developing in three months of the summer represents nearly half of the annual incidence.

One feature of interest is the sporadic nature of the infection. The men tested in the two series were grouped almost equally into four companies, but the new positives were all in two of the companies, the other two companies being entirely free of new cases. Three of the new positives were White, Whitfield and Wilson, alphabetically contiguous on the company roster and presumably together on many bivouacs and maneuvers. It is possible that all were infected by the same gust of wind, carrying dust from a particularly heavy growth of the fungus.

Of the 14 men with proved new coccidioidomycosis, only 1 had entered the hospital for a respiratory or febrile illness. Two others had been hospitalized, one for a head injury and one for flat feet. There is no provision at Camp Roberts for resting off duty. If a soldier is not feeling fit for strenuous duty he enters the hospital. It is therefore obvious that the morbidity associated with the onset of coccidioidomycosis is almost insignificant in most cases. Some of the patients, however, suffered illness sufficient to incapacitate for military duty. In fact, the discovery of the presence of coccidioidomycosis at Camp Roberts depended on the typical symptoms occurring in one of the early patients.

When symptoms do occur in association with the onset of the disease, they may be of great diversity. Apparently there may be any combination of the various "typical" stigmas, and any grade of severity may exist. The symptoms considered characteristic include malaise. weakness, fever, chills, chest pain, cough and dyspnea, and the common manifestations include erythema nodosum, erythema multiforme, pulmonary rales, roentgen evidence of pulmonary or mediastinal lymph node disease and eosinophilia. Of course, a positive coccidioidin skin test may be presumed to exist in all new cases after the first five to fifteen days. The presence of a positive skin test, however, does not necessarily indicate a recent or active stage of the disease. Like the reaction to tuberculin, the skin test is positive for many years after the primary infection, presumably for Serologic evidence of the disease, in the nature of a precipitin reaction or a complement fixation, is present in the vast majority of cases; at least, in all our cases in which the tests were made they were found positive. The sputum yields the fungus itself in approximately 50 per cent of cases of erythema nodosum of coccidioidal etiology, according to other investigators.7 Detection of the fungus requires culture of the sputum and inoculation of guinea pigs or mice with any suspicious growth, because direct microscopic examination of sputum or colonies from primary culture does not provide any sure differentiation from other fungi. While the final proof of the diagnosis depends, of course, on the recovery of the etiologic agent, for practical purposes diagnostic error is minimal if the skin test, eosinophilia, pulmonary signs and symptoms and skin manifestations are typical. SUMMARY

1. Several cases of primary coccidioidomycosis developed in the vicinity of Camp Roberts, California, a hitherto unknown endemic focus of the disease.

- 2. Of 736 soldiers who came from other parts of the United States to Camp Roberts, 14 became infected during three months' residence here, from June to September.
- 3. The morbidity associated with the onset of infection is almost negligible in most cases.
- 4. Rarely a patient becomes quite ill at the onset of the disease, with more or less fever, cough, pain, cutaneous eruption and pulmonary infiitration.

## OBSTETRICS IN WARTIME

O. LEE SCHATTENBURG, M.D.

Acting Director, Bureau of Maternal and Child Health, Board of Health, Territory of Hawaii

HONOLULU, HAWAII

On Sunday morning Dec. 7, 1941, out of literally a clear sky, Honolulu and its environs suddenly suffered a severe bombing. The details of the damage done, the number of civilian and military casualties and the military aspects of the problem are not the purpose or province of this paper. The sudden violence of this catastrophe did awaken the world to the possibility that a similar event might happen almost anywhere else.

Much will be written and much will be said regarding the care of casuals, emergency aid stations, police and fire protection and a number of other phases of community activity under similar circumstances: the specific problem of this paper is to consider obstetric management under crisis conditions. It is probable that this problem is just as real as the aforementioned problems; it is also probable that this problem as it existed in Honolulu would be paralleled in any other community. The experiences of this community are therefore delineated here in the hopes that they may be of help and guidance to other communities in making plans for war time conditions or a possible sudden catastrophe.

## PEACE TIME SETUP

Hawaii is a group of islands and therefore a scattered community with problems of transportation much greater than in most mainland communities. Honolulu is the only metropolitan area with a population of 200,000; the rest can be accepted as essentially rural with highly organized plantations making up the bulk of the latter. The 400,000 odd population gives birth to about 10,000 babies yearly; this is a very mixed population, nearly half being Orientals. Oahu is not the largest island, but it contains the bulk of the population and nearly all the military activities, personnel and defense equipment; it was this island which was the target for the Japanese attack.

Numerous factors contributed to a very poor obstetric record in this community until about a decade ago. At that time the outstanding facts showed, briefly, that:

Almost 50 per cent of deliveries were unattended. Only 25 per cent were hospital deliveries.

Less than one third of deliveries were by physicians.

Maternal mortality rates ranged around 9 per thousand live

Infant death rates were around 90; they had previously been consistently over 200 in some communities.

Nobody had any control over midwives, and there was no one to question their qualifications or abilities.

There was no regulation of hospitals accepting maternity

Almost every physician was doing some obstetrics, and there was no one to question his methods or end results.

Antepartum care was the exception rather than the rule.

The advent of a maternal and child health program under the board of health proved very useful as a state agency in effecting improvements, and about it could be built a sane and practical program of maternal welfare. With an obstetrician and a pediatrician at the head of such a bureau, many accomplishments were recorded which tended materially to change the obstetric complexion. In contrast with the conditions of ten years ago, the following briefly shows the present status:

About 80 per cent of deliveries occur in hospitals.

More than 80 per cent of deliveries are attended by a physician.

The maternal mortality rate is 1.9 per thousand.

The infant death rate is around 40.

Less than 10 per cent of deliveries are unattended.

Midwives are under strict control by the board of health; there are fewer midwives, and midwife deliveries are decreasing in number.

There are forty antepartum clinics, carefully supervised, offering services even to remote communities.

Antepartum care is the rule rather than the exception.

An educational program has taught the expectant mother to demand hospital deliveries by a physician.

All hospitals accepting maternity cases are inspected yearly. They have been compelled to come up to minimum standards of equipment and service (separate nurseries, incubators, delivery rooms, isolation facilities, 75 square feet per adult bed, and so on).

Obstetric consultation services are offered by qualified obstetricians.

Each maternal death is carefully investigated.

Refresher courses in obstetrics and other teaching methods have awakened the general practitioner to his responsibilities in his obstetric practices, with noticeable improvement.

With this record of achievement, it is logical that the state agency should be in a key position to make plans for a major disaster and to help execute such plans when catastrophe arrives. Any community now making similar plans might do well to consult its own state agency, because it is in the best position to have a broad perspective of the community problems.

## DISASTER PLANS

Honolulu had realized its precarious position and had probably gone further in perfecting major disaster plans than most similar mainland communities. With "M-Day" funds set up through legislation and headed by a major disaster council, months of planning and training found Honolulu with plans which came in handy when catastrophe overtook us suddenly. Of all the civilian groups, the medical fraternity was probably best prepared. This is proved by the facts that within about an hour's time after bombing began the following medical activities were in evidence:

First aid stations, completely staffed with doctors, nurses and litter bearers, were at their stations and functioning throughout the city; although the equipment was inadequate at first, the personnel were adequately trained in their duties by many weeks of first aid instruction.

Civilian surgeons with previous instruction in military surgery were immediately available for civilian hospitals and the surplus of doctors was rushed to a military hospital, where they proved useful in caring for a large number of casuals.

(The physicians had previously been carefully catalogued regarding their special abilities, training and whereabouts.)

By previous arrangement, many station wagons and light trucks were immediately available for ambulance service. A corps of trained women drivers proved very useful.

Equipment for producing plasma and a plasma bank of about two hundred flasks were available through previous foresight and proved most useful. The equipment was immediately put to further use and the plasma bank has now been built up to about five thousand flasks.

Civilian hospitals were immediately expanded to maximum capacity by adding stored equipment and by evacuating the less ill patients to their homes. The precision with which civilian hospitals functioned was the reward of careful planning and previously trained personnel.

The board of health immediately went on a twenty-four hour basis to lend every effort in safeguarding the health of the community.

While a sudden disaster instinctively turns one's mind to the importance of first aid, of immediate care of casuals, of ambulances and trained personnel to care for the wounded, it is also well to keep in mind that, war or no war, women will keep right on having babies and they must also receive adequate care. What is more, the experiences in London showed that, under the acute stress of a bombing, women are apt to go into premature labor or to abort. Plans for a major disaster must therefore include obstetric provisions.

Locally our plans had been directed along several practical lines and, fortunately, had had some time to mature before the crisis hit us. The following proved to be very workable:

- 1. Obstetricians were assigned to maternity hospital posts instead of being used in other hospitals to care for casualties.
- 2. Pediatrician-public health nurse teams, equipped with incubator, oxygen and other equipment, were available for premature infants born before getting into a hospital.
- 3. A careful survey of all available maternity bed facilities in the community had been made and had proved the fact that such facilities were already overtaxed; there had been a rapid increase of population as the result of importation of defense workers and increasing military personnel. The sudden crisis caught us before we had been able to expand our maternity facilities, and it became obvious that to increase the obstetric load was possible only by decreasing the stay post partum. Our patients were therefore forewarned that, in case of a disaster, we would continue to offer the facilities of our delivery rooms but would expect them to return to their families earlier than under normal conditions.
- 4. Arrangements were made with the hospitals to prevent the encroachment on the maternity departments by casuals.
- 5. All public health nurses were given a refresher course in practical obstetrics to improve their efficiency in home deliveries.
- 6. Home delivery packs were made up and kept in readiness in a convenient place for district nurses or doctors.
- 7. Nursing personnel in obstetric departments should be kept intact regardless of the extra load the rest of the hospital might suddenly be compelled to carry.
- 8. All expectant mothers were repeatedly advised to continue planning for hospital deliveries, regardless of a crisis.
- 9. Competent pediatricians and obstetricians were to be kept available for consultation purposes as an aid to the general practitioner or to cover for him in case he was suddenly pressed into other disaster activities.
- 10. Prompt resumption of all obstetric and pediatric clinics was planned for as soon as circumstances possibly would permit.

## HOW THE PLAN WORKED

With surprising ease, the obstetric load was carried with the minimum of friction. Postpartum patients were evacuated to their families without any protests. The delivery services and nursing facilities were ade-The surprising fact, however, was that we did not get the flood of premature labors or abortions which were expected; there was a slight flurry the first day or two, but the incidence was hardly above normal. This can possibly be explained by two underlying factors: (1) The bombing came as a sudden surprise, giving us no time to develop the state of alarm that would accompany anticipation of such an event, and (2) the quality of American womanhood of today is such as to be able to face a real crisis with remarkable fortitude. The latter is an observation we have been able to make repeatedly in private and clinic cases and seems convincing that the mother of today instinctively retains some of the courage which allowed pioneer women to continue to rear their families in the face of hardship, privation and danger. However, it is fully appreciated that a second bombing here would be a much more severe test of fortitude than was the first and we are continuing to expect an increased load of abortions and premature labors in the event of another sudden bombing; the plans outlined are still being kept as a practical working basis.

## WHAT WE HAD NOT PLANNED

It is hard to anticipate every eventuality ahead of time, and we found here that unexpected circumstances presented themselves, demanding solution. tion a few:

- 1. The immediate and continued blackouts made night traveling difficult, slow and hazardous. Pregnant women who were developing symptoms of beginning labor were advised to get in touch with their physicians before nightfall and to enter the hospital during daylight hours as often as circumstances warranted. The radio and the press were used to disseminate such information.
- 2. The declaration of sudden martial law prohibited any one from being on the street at night except a few specially privileged classes. Police, taxicabs, doctors, civilian guards, aid station employees and ambulances were among the privileged classes. In the event of onset of labor at night, taxicabs and police patrol cars proved adequate for such transportation and the police radio patrol system proved efficient in locating the call of the pregnant woman with the minimum of delay.
- 3. A high percentage of our midwives proved to be aliens and were given no leeway in privileges of being on the street at night. They were quickly convinced that any of their patients going into labor at night would have to be referred to the nearest hospital as the only solution of that problem.
- 4. There was an abrupt increase in incidence of eclamptogenic This is understandable when one realizes that a prolonged period of stress would tend to disrupt metabolism and throw a considerable extra load on the nervous system.
- 5. The question arose what to do with the early pregnant woman whose husband had suddenly been killed. There were numerous instances of women who had been severely shocked by the sudden loss of the husband in the unexpected catastrophe, added to which was the discovery of an early pregnancy. It was gratifying to note the renewed courage of each of these women when she was advised to carry through with her pregnancy for two logical reasons: (1) she would be able to have a living memory of her husband who died so gallantly and (2) she would be able to make a real contribution to the national program by bearing a child. I saw no hint of refusal to carry through after these facts had been carefully explained.

#### COMMENT

The experiences of managing a community wide obstetric program in Hawaii before, during and after a sudden major disaster are described in the hope that these facts may be of some value to other communities in their efforts to make similar plans. Previously made plans proved workable in an acute crisis, although several unanticipated problems arose which were solved without difficulty.

LATER .- Since the foregoing was written, Honolulu has had two air raid alarms and one bombing; the program outlined is still proving itself useful.

386 Young Hotel Building.

## THE VENOGRAPHIC DIAGNOSIS OF THROMBOPHLEBITIS OF THE LOWER EXTREMITIES

ARNOLD STARR, M.D. HOWARD A. FRANK, M.D. AND JACOB FINE, M.D. BOSTON

Convincing evidence is rapidly accumulating that most pulmonary emboli of extracardiac origin arise from thrombophlebitis in the deep veins of the lower extremities. The passage of an embolus from the leg to the lung can be prevented by division of the femoral vein. Indeed, Fine and Sears 2 have recently urged this procedure in all cases of deep thrombophlebitis of the lower extremity as the most effective prophylaxis against embolism. The prevention of pulmonary embolus depends on the early recognition of the venous thrombosis, but the clinical evidence of phlebitis may be equivocal or entirely lacking until a pulmonary infarct indicates its presence. A method which can establish the diagnosis and locate the side on which the process lies has been provided by the venographic technic recently described by Bauer.3 The benefits of this diagnostic procedure are the subject of this communication.

## TECHNIC

The patient lies on his back with a 6 cm. block heel. A 14 by 17 inch x-ray film 4 is placed under the leg, its lower edge about 3 inches above the ankle. A small incision is made about 1 cm. behind the external malleolus. A constant small vein is found here which communicates readily with the deep system. Through a fine needle 20 cc. of 35 per cent diodrast in is injected at a uniform rate during a period of sixty seconds. At the end of the injection the exposure is made.

Resistance to the injection may be notably increased over that encountered in the absence of deep thromhosis. A useful hint of the presence of thrombosis is a decid-

Sears. Bauer. 
2. Fine, Jacob, and Sears, J. B.: The Prophylaxis of Pulmerary 
2. Fine, Jacob, and Sears, J. B.: The Prophylaxis of Pulmerary 
2. Fine, Jacob, and Sears, J. B.: The Prophylaxis of Pulmerary 
3. Bauer, G.: Venographic Studies of Thromboembolic Disease, Acta 
chir. Scandinav. (supp. 61) 84:1, 1940. 
4. Bauer uses a larger film. 
4a. Supplied by the Winthrop Chemical Company.

From the Surgical Department of the Beth Israel Hospital.

1. Frykholm. Ragnar: Pathogenesis and Mechanical Prophylavis of Venous Thrombosis, Surg., Gynec. & Obst. 71: 307 (Sept.) 1940. Neuman, R.: Centers of Origin and Forms of Development of Thrombosis of the Leg. Virchows Arch. f. path. Anat. 301: 708, 1937. Rössl, R.: On the Significance and Origin of Venous Thrombosis of the Rossl, R.: Que and Sonyder, G. A. C.: Thrombosis of the Deep Control of the Leg. 1861. Significance as Exemplified in Three Hundred and Fifty-one Autopsies, Arch. Int. Med. 68: 1 (July) 1941. Fine and Sears. Bauer.

2. Fine, Iacob. and Sears, J. B.: The Prophylaxis of Pulmeraty (1941)

edly increased caliber of the vein at the ankle. If the foot is held in moderate inversion the shadow of the veins will not be obscured by that of the bones of the leg. The normal venogram shows the deep veins of the calf, the popliteal and the femoral vein well outlined. A few superficial veins also are seen. Thrombophlebitis is characterized by partial or complete absence of filling of the deep veins with the contrast medium. Superficial collateral channels may be evident even in the acute stage, although they are more obvious in long standing deep thrombophlebitis. When the venogram of an extremity is repeated, the identical pattern of normal filling or of a filling defect is reproduced.

The value of this type of venography is illustrated in the following cases:

CASE 1.—A woman aged 35 entered the hospital complaining of recurrent attacks of upper abdominal pain of several years' duration. A Graham test was positive for cholelithiasis. Cholecystectomy and choledochostomy were done. The post-operative course was uneventful except for an unexplained daily

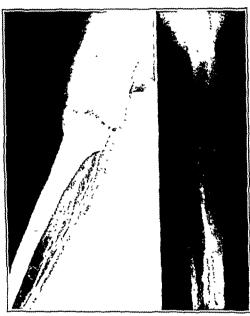


Fig. 1 (case 1).-Normal filling of deep system on both sides.

low grade elevation of temperature during the second week after operation. The leukocyte count varied between 12,000 and 15,000. Because of these signs deep phlebitis in the legs was suspected and looked for, but no evidence for this diagnosis could be found. Venograms were done on both lower extremities during this period and normal findings were obtained (fig. 1). On the nineteenth postoperative day the patient complained of pain in the left calf and pain in the right side of the chest. Examination disclosed tenderness in the left calf and dulness to percussion and rales at the right lung base. Bilateral venograms were repeated and showed failure of filling of the deep veins of the left leg (fig. 2). Division of the left common femoral vein was done. At operation, six hours after venography, diodrast was found in the femoral vein. No clot or thrombus was present at the site of division. Within twentyfour hours the pain and tenderness in the left leg disappeared completely. Three days later the patient was allowed to be up and about and was discharged a week after division of the femoral vein free from all symptoms and signs in the chest and extremities. There was no edema in either leg.

In this case the unexplained low grade fever aroused the suspicion of deep phlebitis, but in the absence of evidence to support this diagnosis the first venograms were taken and found normal. When these were

repeated a week later following the appearance of pain in the leg and chest, a distinct change in the veins in the left leg was observed.

CASE 2.—A man aged 60 entered the hospital for the repair of a recurrent inguinal hernia. Examination disclosed hyper-

tension, pulmonary emphysema and a right inguinal hernia. Herniorrhaphy was done, using fascia taken from the right thigh. The postoperative course was uneventful for twelve days. He was then allowed up in a chair. That evening he complained of pain in the left calf, which was found to be slightly tender on deep palpation. There was slight pain on dorsiflexion of the foot. There was no edema, cyanosis or increased heat. There was no elevation of temperature or pulse rate, and the leukocyte count was 10,700. A venogram of the left leg showed failure of filling of the deep system

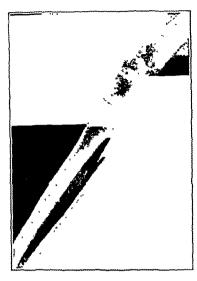


Fig. 2 (case 1).—Second venogram of left leg showing acute thrombophlebitis with complete absence of filling of the deep veins of the lower leg, the popliteal vein and the lower part of the femoral vein. The greater and lesser saphenous veins are filled.

of veins (fig. 3). A venogram of the right leg taken for comparison showed normal filling of the deep veins. The small vein at the ankle on the left side was observed to have twice the diameter of the same vein on the right side, and there

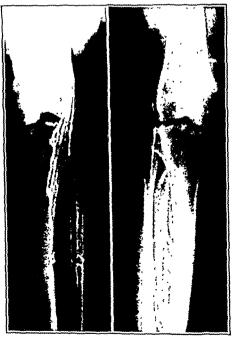


Fig. 3 (case 2).—Failure of filling of the deep veins below the populteal is shown on the left. The superficial veins are larger and more numerous on this side.

was much more resistance to injection on the left side. The next morning the patient complained of a sudden onset of pain in the right side of the chest aggravated by inspiration. Rales, which were not present previously, were heard in the right lower lobe. A diagnosis of pulmonary infarction was made

and confirmed by a roentgenogram. Under local anesthesia the left femoral vein was divided just distal to the profunda The vein at this level appeared normal, but when it was divided diodrast escaped from its lumen. This was interpreted as being due to a greatly retarded blood flow from the veins blocked by thrombus. The patient became free from pain and tenderness in the leg within twenty-four hours after division of the vein. Later there was a small pleural effusion and evidence of infection in the infarcted area of the lung. Further progress was satisfactory until the twenty-third postoperative day, when after having been up and around he experienced severe pain in the left side of the chest followed by hemoptysis Severe dyspnea and cyanosis developed. Examination showed rales and a friction rub in the left lower part of the chest and evidence of infarction in the left lower lobe, which was confirmed by roentgenography. Since the source of the second infarct was uncertain, venograms were again taken of both legs. The injection on the left side was made into the great saphenous vein in the midthigh, as suggested by Bauer, in order to outline the femoral vein proximal to the site of division as well as the iliac vein. The roentgenogram (fig. 4) showed normal filling of these structures. The venogram on the right side, however, disclosed an absence of filling in one of the tibial veins, and this was considered to be due to thrombosis (fig. 5). Accordingly, despite the patient's respiratory distress the right femoral vein was divided below the vena profunda under local anesthesia. Although convalescence from the pulmonary complication was somewhat stormy for a few days, recovery followed.

If left femoral vein ligation in this case had been done immediately after the venogram disclosed evidence of thrombosis, the first infarction might have been averted. When the second infarct occurred, further venography excluded thrombosis in the left common femoral and iliac veins and located the block in the right anterior tibial vein.

CASE 3.—A man aged 38 entered the hospital complaining of pain in the right side of the chest and cough of three weeks' duration. The history

disclosed that asymp-

tomatic varicose saphenous veins had been

present for ten years

in the right leg. These

had been injected five

years before admission.

Physical examination

was negative except

for dulness and di-

minished breath sounds

throughout the lower

two thirds of the right

lung field and varicos-

ities of the saphenous

system of the right leg. Roentgenograms

of the chest showed a

pleural effusion. Tho-

racentesis yielded

grossly bloody fluid.

Culture, Gram and

showed no bacteria.

No tumor cells were

found in the sediment

of the centrifuged

pleural exudate. Pul-

monary infarction was

considered in the dif-

stains

Ziehl-Neelsen

Fig. 4 (case 2).—Venogram of left common femoral vein and iliac vein. This roentgenogram was taken after the injection of diodrast into the greater saphenous vein in the thigh, ten days after division of the femoral vein below the profunda. No evidence of disease of the veins is present.

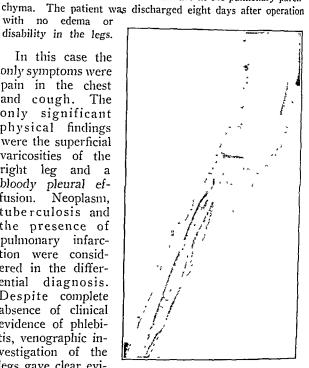
ferential diagnosis. Accordingly, the deep veins of the legs were investigated. No clinical evidence of deep phlebitis was apparent, but venography showed failure of filling of the deep system on the right side (fig. 6). The venogram of the left leg

disability in the legs. In this case the only symptoms were pain in the chest and cough. The only significant physical findings were the superficial varicosities of the right leg and a bloody pleural effusion. Neoplasm, tuberculosis and the presence of pulmonary infarc-tion were consid-ered in the differential diagnosis. Despite complete absence of clinical evidence of phlebitis, venographic investigation of the legs gave clear evidence of an obstruc-

tive process in the

deep veins of the

right leg (fig. 6).



showed normal deep veins. The right common femoral vein

was divided. No clot was found at the site of division, but

diodrast escaped from the distal end of the divided vein as

in the previous cases. The convalescence was uncomplicated.

The pleural effusion gradually disappeared. Further x-ray

studies disclosed no evidence of disease in the pulmonary paren-

Fig. 4 (case 2).—Second venogram of right leg. The failure to outline the greater part of the anterior tibial vein by this venogram in contrast to the better filling shown by the previous venogram of the same leg (fig. 3) suggests the development of thrombosis in this vessel.

The right femoral vein was divided to prevent the occurrence of further pulmonary infarction.

CASE 4.—A woman aged 40 entered the hospital complaining of urinary incontinence. She was obese and had hypertension Two vaginal operations for incontinence were done in a period of two months. At the end of this time, when the patient was allowed out of bed, she complained of difficulty in walking because of pain in both calves, which were tender on pressure. A daily temperature elevation of 1 degree was noted, but there was also evidence of mild urinary sepsis. It was not clear whether or not the patient had deep phlebitis. Venograms showed normal filling of the deep veins of the legs (fig. 7). The patient was therefore allowed to continue to walk about, with gradual disappearance of the discomfort in the legs.

This patient's complaint of pain in the legs when first allowed out of bed and the low grade temperature elevation suggested the possibility of bilateral phlebitis, but the normal venograms provided the only assurance obtainable that she could be permitted to be active without fear of a pulmonary embolus.

#### COMMENT

Until recently venography has been unsatisfactory for the diagnosis of thrombophlebitis because the technics utilized were incapable of visualizing the entire deep system of veins. Since evidence is now available 1 that the source of most pulmonary emboli is thrombophlebitis in the deep veins of the lower leg, the venographic method of Bauer, which adequately visualizes

these veins,3 provides the most reliable means of establishing the diagnosis when the signs and symptoms are inconclusive or wholly lacking. An extremely useful guide for the institution of prophylactic therapy for pulmonary embolism is thus provided.

The possibility of setting up thrombosis in the veins by injection of diodrast is probably not an important consideration in view of Bauer's experience and the absence of phlebitis following the use of diodrast for intravenous urography. A long exposure (twenty-four hours in one instance) of the intima of the femoral vein to diodrast has been observed without gross evidence of injury.

Phlebitis has not developed at the site of injection, even when it is repeatedly done. We have nevertheless adopted the suggestion of Dougherty and Homans 6 that the vein be washed out with saline solution after the injection of the diodrast. Another theoretical hazard, i. e. the release of a clot by the pressure of the injected fluid, has not occurred to our knowledge.

We have observed dilatation of the constant small vein at the ankle which is used for the injection in the presence of thrombophlebitis. We have also noticed increased resistance to the injection in the presence of thrombophlebitis.

The finding of diodrast in the femoral vein at the time of division is evidence of a retarded flow in the deep system of veins and provides indirect confirmation of the venographic diagnosis of thrombophlebitis.

There is frequently good reason for performing venography on both sides, not only to confirm or refute the clinical evidence on the side under suspicion, but also to demonstrate the presence or absence of the disease in the unsuspected side. It should be clear that

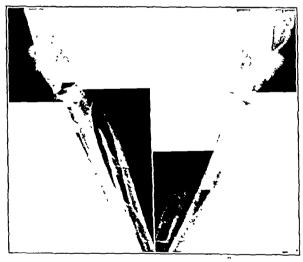


Fig. 6 (case 3).—The deep veius of the upper half of the right lower leg, the right popliteal vein and the right femoral vein do not fill. The venous return is by way of the varicose external saphenous vein.

the process is frequently bilateral and that an embolus may arise from either side whether or not signs and symptoms are present. The data provided by Bauer

and our experience to date suggest that, when properly performed, a normal venogram can be regarded as conclusive evidence against thrombophlebitis in the veins visualized.

After operation patients commonly experience pain in the calves when they first begin to walk. In this situa-

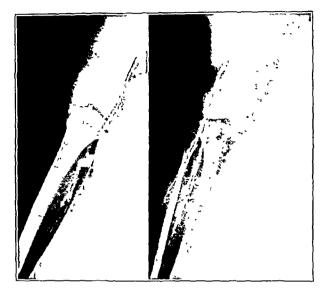


Fig. 7 (case 4).—The deep veins fill normally.

tion a suspicion of phlebitis with its implied danger of embolism is unavoidable. Heretofore a guide to an intelligent choice of action has not been available. Fatal embolus just before or soon after discharge from the hospital occasionally results in such circumstances. By utilizing the venographic method under discussion a means of instituting preventive therapy is now possible.

## CONCLUSIONS

- 1. A technic described by Bauer for the visualization of the deep veins of the leg has been useful in the diagnosis of acute thrombophlebitis.
- 2. The early diagnosis of thrombophlebitis by this method facilitates the institution of effective prophylaxis against pulmonary embolism at an earlier period than has been possible heretofore.

520 Beacon Street.

Leadership.-If four men guess wrongly on a given prediction and the fifth man guesses rightly we say "how wise" when in reality we ought to say "how lucky." A guess that turns out right is not a prediction; it remains a guess. A man whose prediction is justified by future events need not necessarily have found the one solution possible. In much of science there is one answer and one answer only to a given problem. It is not plus or minus four but plus four and not minus four. In many social problems, on the other hand, the correct solution is the acceptable solution, the workable solution, and there may be several such solutions. Lincoln found his solutions by a method all his own. He himself disclaimed leadership. He said the people led. He waited until he thought that he knew what the people were thinking. There is another type of leadership that may be higher still, the type that teaches a people to understand what it ought to want. Only in conversation, using the term in its broadest sense, has this been done in American life, with conspicuous failures all too often in oil conservation, soil conservation, forest conservation.-Bowman, Isaiah: Enduring Purpose, Assn. Am. Coll. Bull. 26:194 (May)

^{5.} The method advocated by Dougherty and Homans is substantially the same as that advocated by Bauer, although the former authors applied the method primarily for study of the veins in the thigh rather than the lower lee. Bruter emphasized the value of roentgenographic evidence in the lower leg for the diagnosis of acute thrombophlebins. A 14 by 36 inch tim and casestte is now available for filming the entire leg.

6 Dougherty, John, and Homans, John: Venography, a Clinical Study, Surg, Gynec, & Olist, 71: 697 (Dec.) 1940.

## CHRONIC HEMOLYTIC STREPTOCOCCUS ULCERS OF THE EXTREMITIES

FREDERIC W. TAYLOR, M.D.

INDIANAPOLIS

It is indeed strange that chronic hemolytic streptococcus ulcers of the extremities have received so little attention and comment. This is all the more unusual since the lesion itself forms a clearcut entity and since there is a specific treatment for the condition.

There are but 5 of these cases reported in recent literature.1 Nevertheless, 31 such cases were seen in the surgery clinic of the Indianapolis City Hospital during the past two and one-half years. The inference is obvious. Many chronic hemolytic streptococcus ulcers of the extremities have gone undiagnosed. In fact, none were found at the Indianapolis City Hospital until Goodman's 1 report in 1938.

### DESCRIPTION

Since so many streptococcic ulcerations have recently been described, it is essential that a clearcut picture be

Practically all the ulcers are found on the lower leg. In the present report only two were present on the

The hemolytic streptococcus can be found in cultures from all ulcers, although it may not be identified on the first culture. This organism may appear in pure culture but most frequently has some contaminant. In the present report the contaminant was Staphylococcus albus in one half of the cases. These contaminating organisms are not considered to be growing in symbiosis with the hemolytic streptococcus.

There is one feature of the disease which is of considerable aid in suggesting the diagnosis. Most chronic ulcers have a definite background. They are superimposed on old varicosities, arteriosclerosis, frost bite or syphilis. This is not the case in chronic hemolytic streptococcus ulcer. This ulcer has no such background. It appears usually where there is no vascular impairment and where the circulation is quite adequate. It is seen most frequently in children and young adults The average age at the Indianapolis City Hospital was 22.7 years. The oldest patient was 57, the youngest 3

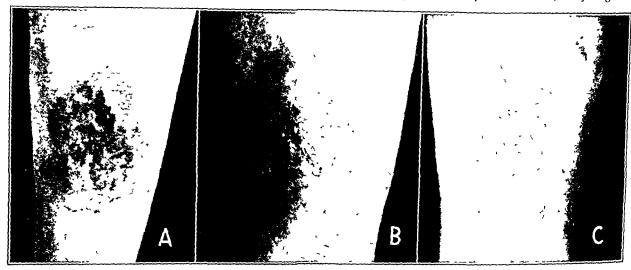


Fig. 1 (H. B., aged 40)—Ulcer and excortation over anterior tibial region spreading under local treatment. This tollowed a bruise and slight abiasion two months prior to A. B, after eighteen days of sulfanilamide 60 grains (4 Gm.) daily. C, complete healing after dropping off of crust a few days later.

given of the condition at hand. It bears no relation in appearance or course to the burrowing ulcers or symbiotic gangrene described by Meleney.

The ulcer starts at the site of a slight cutaneous excoriation or insect bite. After a few days a small indolent ulcer appears. This is usually about 1 cm. in diameter but may progress slowly to 5 or 6 cm. in a week or two. Pain is not an outstanding feature.

The ulcer has none of the characteristics which suggest to the clinician the possibility of a hemolytic strep-tococcus infection. The tissue reaction is slight, being confined to the reddened ulcer margin. This may or may not be undermined. There is no surrounding edema or lymphangitis. The base of the ulcer weeps a watery serum from a pale atrophic granulation tissue. The lesion as a whole gives the impression that the tissues are making little or no effort to heal the defect.

CASES

The cases identified and studied were seen in the outpatient surgical clinic of the Indianapolis City Hospital. No attempt has been made to list the cases separately. They have been summarized and the results noted. Three typical cases are shown in the accompanying illustrations. All cases were seen during the two and one-half year period starting in October 1938 and ending in April 1941.

During this time 52 chronic ulcers were studied. From these were obtained one or more cultures of the (beta) hemolytic streptococcus. Of this number there were 21 ulcers which were considered to have a definite background of vascular impairment or syphilis. These were dropped from the present study, leaving 31 cases in which the ulcer was thought to be due primarily to the hemolytic streptococcus. No other contributing cause could be found.

All ulcers appeared on the lower extremity with two exceptions. These were in children with several ulcers over the dorsum of the hand and arm. There were 2 instances in which more than 1 member of the same family had a chronic hemolytic ulcer at the same time.

From the Department of Surgery, Indianapolis City Hospital, and the Indiana University School of Medicine
1. Goodman, M. H.: Chronic Streptococcic Ulcer of the Skin, J. A. M. A. 111:1427 (Oct. 15) 1938. Wright, C. S., and Friedman, Reuben Chronic Streptococcic Ulcer of the Skin Responding to Sulfanilamde, Arch Dermat. & Syph 39:554 (March) 1939. Hamburger, H. J. Observations on the Pathology and Therapy of the So-Called Frontier Sore, Indian M. Gaz. 74::151 (March) 1939.
2. Meleney, F. L.: Zinc Peroxide in the Treatment of Microaerophilic and Anaerobic Infections, Ann. Surg 101:997 (April) 1935.

Two patients were admitted to the hospital for treatment. The rest were handled entirely as outpatients. All cases were followed, and so far there have been no recurrences in the primary hemolytic streptococcus ulcer group.

The ulcers varied in size from 1 cm. to 6 cm. Local adjacent skin inflammation or edema was found in only 5 instances. The remaining cases merely showed an indolent sluggish ulcer with little or no reaction.

The patients had had their lesions for from two weeks to four years when specific therapy was started in the hospital. Omitting the four year case, the average duration of the ulcer was two months. During this time they had received all types of home remedies plus those used currently in the clinic. The use of the latter drugs depended on the whim of the particular clinician. They included 2 per cent methylrosaniline (gentian violet), tincture of merthiolate, scarlet red ointment, boric acid ointment, zinc oxide ointment, ammoniated

were not followed on all the patients, but this is a precaution which certainly should not be overlooked.

Occasional blood sulfanilamide determinations were made. These were rather low, varying from 3.5 to 5.2 mg. per hundred cubic centimeters of blood. Apparently no greater concentration was necessary in this type of infection.

RESULTS

There were 5 of the 31 cases of primary chronic hemolytic streptococcus ulcer which healed under local wet dressings and applications. These healed in an average of fourteen days.

Six more patients received entirely inadequate amounts of sulfanilamide. Several of these were lost temporarily to the clinic and continued with local home remedies. Their ulcers eventually all closed in an average of fifty-one days.

This leaves 19 patients who received adequate amounts of sulfanilamide. These patients had had their

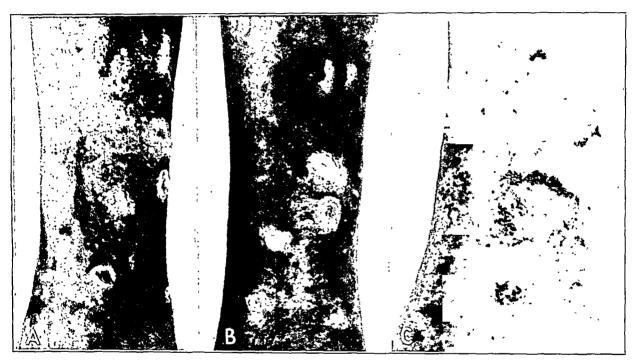


Fig. 2 (W. Y., Negro aged 26 years).—A, ulcers present for four years and being treated regularly in the surgical clinic. When cultures were finally taken and hemolytic streptococci found, 10 ulcers were present. B, after two days of sulfanilamide, ulcers showed signs of healing with healthy granulations. C, ulcers completely healed after fourteen days of sulfanilamide 60 grains (4 Gm.) daily.

mercury ointment, wet dressings of physiologic solution of sodium chloride, magnesium sulfate, Burow's solution, diluted solution of sodium hypochlorite, 70 per cent alcohol and dusting powders of thymol iodide and sulfamilamide.

TREATMENT

The lesion usually received varying amounts of the foregoing drugs. Then some one usually became curious as to why healing did not take place and finally took a culture. When a positive culture was obtained, specific therapy was instituted.

Specific therapy consisted of oral sulfanilamide as suggested by Goodman.¹ The adult dosage varied from 20 to 90 grains (1.3 to 6 Gm.) daily. In general the smaller doses were ineffectual but doses of from 60 to 70 grains (4 to 4.5 Gm.) daily seemed quite sufficient.

The patients were followed in the outpatient clinic to guard against untoward reactions. Blood counts

ulcers for from two weeks to four years. Omitting the case of four years' duration, they had had their ulcers for an average of seven and seven-tenths weeks. Following the specific drug therapy the ulcers were healed in an average of one and eight-tenths weeks.

The dramatic rapidity with which some of these chronic ulcerations heal is nicely shown in figure 2. The ulcerations had been present in this 26 year old Negro for four years. During most of that time he had been seen in the surgical clinic several times a week. During that time he had received every type of ointment and solution on the dressing table. At the time the condition was finally recognized, he had 10 ulcers measuring from 1 to 2 cm. in diameter. He was given 60 grains (4 Gm.) of sulfanilamide daily for fourteen days. At the end of this period the ulcers were completely healed for the first time in four years. They have remained healed.

The rapidity of healing under specific therapy is one of the most striking features of these ulcers. It is indeed thrilling to see them literally heal before one's

eyes.

What has been said about the specificity of sulfanilamide holds true only for primary chronic hemolytic streptococcus ulcers and not for all chronic ulcers which contain this organism. During the course of the present study 21 ulcers were encountered which contained hemolytic streptococci but had as their basis varicosities, phlebitis, arteriosclerosis or syphilis. These patients were given sulfanilamide. The result was a disappearance of the hemolytic streptococcus, but the fundamental background of the ulcer still persisted and so did the ulcer.

One of the cases which was considered clinically and bacteriologically to be typical of chronic hemolytic streptococcus ulcer failed completely with sulfanilamide. Under this therapy the hemolytic streptococcus disappeared but the ulcer persisted. No other background

peared but the ulcer persisted. No other background orally. It is interested to the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of t

Fig 3 (M R., aged 41)—A, chronic ulcer of anterior tibial region containing hemolytic strepto cocci. Duration, one and one half years. The ulcer had a vascular background following an injury. The patient could not tolerate oral sulfaulamide and so the powder was applied locally. Hemolytic streptococci had disappeared from the wound when a culture was taken three weeks later. B, complete healing after forty days of powdered sulfaulantide locally and no other type of therapy

could be found in this patient. The ulcer finally healed on home remedies one month after the patient left the hospital. It is possible that a fungous infection was an added factor here, though laboratory findings are lacking. Nevertheless this case represents a flat failure, since it answered all the requirements of the chronic hemolytic streptococcus ulcer.

## COMMENT

It must be emphasized that chronic hemolytic streptococcus ulcer is a very distinct entity and one which is rather frequently encountered. The oral use of sulfanilamide is specific for the lesion. This is true with the exception of an occasional case which is either resistant or more probably misdiagnosed. Among the present series there was 1 such case in 19 in which adequate doses of sulfanilamide were administered. Healing in the remaining cases was spectacular.

The hemolytic streptococcus was also cultured from a large group of varicose and other vascular ulcers. Of course, in these instances sulfanilamide did not cure the lesion. It did, however, cause considerable

improvement. The suggestion is therefore made that, in vascular ulcers containing hemolytic streptococci, sulfanilamide be used as an adjunct to other forms of therapy. The drug, of course, would be useless when the organism is not present.

An interesting feature in epidemiology is noted in this Indianapolis City Hospital series. Of the 31 cases of primary chronic hemolytic streptococcus ulcer 27 (87 per cent) had their onset in the last six months of the year. This does not mean that this number were all treated during this period but that 87 per cent started from a scratch, abrasion or insect bite which was received between the first of June and the last of December. No adequate explanation has been found for this seasonal incidence. The contagious nature of the lesion is indicated by the fact that five ulcers occurred in two families. Three members of one family had ulcers at the same time, as did two in a second family.

In the cases here reported sulfanilamide was given orally. It is interesting to speculate on the possibility

of applying the powdered drug directly on the local wound. It would seem to be an ideal situation for such use. The truth is that the oral use has been so completely satisfactory and specific that those in charge were loath to make the change. The drug was used locally in treatment of 1 patient with a vascular background caused by previous trauma. The ulcer was over the right anterior tibial region and measured 4 cm. in diameter. It had been present for one and one-half years. From the wound the specific organism was cultured and the patient started on sulfanilamide. This proved too toxic to him and so the powdered drug was The hemolytic locally. applied streptococcus had disappeared from the wound when cultures were taken three weeks later and the ulcer was completely healed at forty days (fig. 3). It is planned to use powdered sulfanilamide locally in subsequent cases of primary chronic hemolytic streptococcus ulcer.

#### SUMMARY

1. Chronic hemolytic streptococcus ulcers of the extremities constitute a definite entity with a specific therapy.

2. The lesion is characterized by its chronicity, similarity to chronic ulcers having vascular backgrounds, and lack of inflammatory reaction which might suggest its true nature. Usually it is seen in children and young adults with no vascular impairment. Diagnosis is confirmed by the culture of hemolytic streptococci from the ulcer. In no way does it resemble the symbiotic burrowing streptococcus ulcers.

3. Only 5 chronic hemolytic streptococcus ulcers have been reported in recent literature. None were seen at the Indianapolis City Hospital until a search was made for them. Thirty-one such cases were seen and treated in this institution in the past two and one-half years. The deduction is obvious.

4. This type of ulcer may heal under local treatment. Usually it does not. Oral sulfanilamide is specific.

5. There were 19 cases in the present series in which adequate amounts of sulfanilamide were given. These ulcers healed completely in an average of one and eight-tenths weeks, although they had first been treated locally with all types of drugs for an average of seven and seven-tenths weeks.

6. The local use of powdered sulfanilamide would seem to be indicated in this type of lesion, though it

was not used in the present series.

7. It is suggested that cultures be taken of all chronic ulcers of the extremities to identify those belonging to the chronic hemolytic streptococcus group. In chronic ulcer cases with a vascular background and containing hemolytic streptococci, sulfanilamide might well be employed as an adjunct to other forms of therapy.

23 East Ohio Street.

#### "EGG WHITE OBSERVATIONS ON THE INJURY" IN MAN

AND ITS CURE WITH A BIOTIN CONCENTRATE

V. P. SYDENSTRICKER, M.D.

S. A. SINGAL, PH.D.; A. P. BRIGGS, M.D.

N. M. DEVAUGHN, M.D.

AUGUSTA, GA.

HARRIS ISBELL, M.D.

BETHESDA, MD.

Many investigators have noted that the inclusion of large amounts of egg white in special experimental diets causes a definite nutritional disease in animals. This disorder, commonly called egg white injury, has for its chief symptom an "eczematous dermatitis" which can be prevented or cured by a protective substance formerly called vitamin H which is present in certain foodstuffs. There appears frequently in rats, in addition to the severe general eczematous dermatitis involving the eyelids and lips, an ischemic gangrene of the tip of the tail, presumably due to local vasoconstriction. Recent reports 1 have indicated that vitamin H is identical with biotin, a yeast growth factor, and also with coenzyme R, a growth and respiration factor for many strains of the legume nodule organism Rizobium. Williams and his co-workers have demonstrated that the so-called egg white injury is due to an induced biotin deficiency caused by the binding of the dietary biotin by a protein fraction of raw egg white "avidin," thereby preventing the absorption of this vitamin from the intestinal tract.

In chicks a scaly dermatitis not due to pantothenic acid deficiency has been cured by vitamin H concentrates,³ while biotin concentrates have protected turkey poults against a specific dermatitis.⁴ It appears that

The authors were given constant help and valuable suggestions by Dr. R. E. Butler and technical assistance by Mrs. Marjorie Ber.
This investigation was made possible by grants in aid by the John and Mary R. Markle Foundation and an anonymous donor, and by donations of vitamins by many manufacturers.
From the University of Georgia School of Medicine and University Hospital (Drs. Sydenstricker, Singal, Briggs and DeVaugha) and the National Institute of Health (Dr. Isbell).

1. dn Vigneaud, Vincent; Melville, D. B.; Gvörgy, Paul, and Rose, Catherine S.; Science 92:62 (July 19) 1940. György, Paul, Rose, Catherine S.; Hofman, Klaus; Melville, D. B., and du Vigneaud, Vincent: Science 92:269 (Dec. 27) 1940.

2. Eakin, R. E.; McKinley, W. A., and Williams, R. J.; Science 92:224 (Sept. 6) 1940. Eakin, R. E.; Snell, E. E., and Williams, R. J.; J. Biol. Chem. 136:801 (Dec.) 1940. György, Paul; Rose, Catharine S.; Eakin, R. E.; Snell, E. E. and Williams, R. J.; Science 93:477 (May 16) 1941.

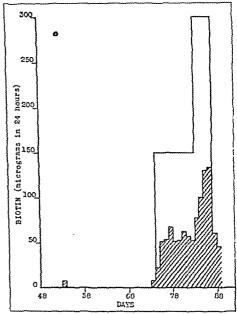
3. Hegsted, D. M.; Oleson, J. J.; Mills, R. R.; Elvehjem, C. A., and Hart, E. B.; J. Nutrition 20:599 (Dec.) 1940.

4. Patrick, H.; Boucher, R. V.; Dutcher, R. Adams, and Knandel, H. C.; Proc. Soc. Exper. Biol. & Med. 48:456 (Nov.) 1941.

this vitamin is also involved in the graying of fur in rats and mice 5 as well as in the synthesis of lipids by

In view of the growing significance of biotin in animal nutrition, it seemed important to determine whether any of the phenomena of human deficiency disease might be related to biotin deficiency. To this end a small group of volunteers ate a diet planned to contain a minimal amount of biotin, which was composed of rice 125 Gm., patent white flour 80 Gm., farina 75 Gm., cane sugar 205 Gm., lard 32 Gm., washed butter 10 Gm. and lean beef 25 Gm. To this was added 200 Gm, of dehydrated egg white. The basal components represented 387 Gm, of carbohydrate, 31 Gm. of protein and 32 Gm. of fat, with a total caloric value of 1,960. In addition, 928 calories was derived from the 160 Gm. of protein and 32 Gm. of fat of the egg white for a grand total caloric value of 2,888. As the egg white was given in solution in a one-third aliquot with each meal, the percentage of egg white of the total food ingested daily was dependent on the amounts of the other components consumed. Usually the egg white furnished in excess of 30 per cent of the total daily caloric intake. Such a diet is poor in vitamins of the B complex except for riboflavin, which is present in desiccated egg white in amounts approximating 10 mg, per hundred grams,7 Consequently the following vitamin supplement was given daily: thiamine hydrochloride 6 mg., riboflavin 9 mg., nicotinic acid 75 mg., pyridoxine 5 mg. and calcium pantothenate 5 mg. In addition, ascorbic acid 75 mg., vitamin A 5,000 units, ferrous sulfate 1 Gm. and calcium lactate 1 Gm. were given.

Of seven volunteers, it has been possible to continue 4 under observation to a satisfactory conclusion. Three were white men, the fourth a Negro woman. All were in good general condition and free from symptoms and



Exerction of patient 3: shaded area, biotin exerction; unshaded area, biotin administered.

signs of avitaminosis when the experiment was begun. During the third and fourth weeks all 4 subjects developed a fine, scaly dermatitis which did not itch and

^{5.} György, Paul, and Poling, C. E.: Proc. Soc. Exper. Biol. & Med. 45:773 (Dec.) 1940.
6. McHenry, E. W., and Gavin, Gertrude: J. Biol. Chem. 140: lxxxii (July) 1941.
7. Personal communication to the authors from Armour & Co., Chicago.

which disappeared spontaneously. Thereafter nothing of significance was noted until the seventh week, when 1 patient developed a maculosquamous dermatitis of the hands, arms and legs. During the seventh and eighth weeks all patients showed a striking grayish pallor of the skin which was out of proportion to the blood picture and was interpreted as evidence of peripheral vasoconstriction. During the same period the 3 white patients showed definite atrophy of the lingual papillae, patchy with the production of a "geographic" tongue in 1, general in 1 and affecting the lateral thirds of the tongue in the third. The Negro patient showed no tongue changes until the fourteenth week of the experiment, when rather rapid denudation of the tongue began. It was notable that the tongues of these patients remained pale with none of the capillary engorgement seen in pellagra or ariboflavinosis. During the ninth and tenth weeks all patients showed dryness of the skin of the extremities with well defined reticulation and a tendency again to fine, branny desquamation; this dermatosis was very similar to that observed during the early period of the experiment. No ocular or genital lesions were observed.

After the fifth week prominent symptoms were strikingly similar to those reported for experimental thiamine deficiency. Mild depression progressed to extreme lassitude, somnolence, hallucination in 1 patient and a mild panic state in 2. Muscle pains, hyperesthesia without demonstrable neurologic changes and localized paresthesias occurred in all 4 subjects. No definite reflex changes were observed. Anorexia progressed to nausea and sitophobia. It was extremely difficult to get these subjects to continue the diet. The caloric intake fell off rapidly in all during the last three weeks of the experiment. Two patients with electrocardiographic evidence of coronary ischemia had precordial pain. The electrocardiograms could not be differentiated from those attributed to thiamine deficiency.

Examinations of the blood at weekly intervals showed a definite diminution in the hemoglobin content, the number of erythrocytes and particularly the volume of packed red cells. These changes occurred in spite of a theoretically adequate intake of iron and a very large protein fraction in the diet. All 4 patients showed an increase in bile pigments and cholesterol in the blood.

Determination of biotin excretion in the urine showed that at the end of seven and eight weeks of the experimental regimen the subjects excreted from 3.5 to 7.3 micrograms of biotin in twenty-four hours as compared with the excretion of 29 to 62 micrograms by persons

taking a normal diet.8

Treatment with an injectable biotin concentrate o has been completed in 3 of the 4 experimental subjects. The daily dose has varied from 75 to 300 micrograms. The minimal amount required for prompt relief of symptoms seemed to be 150 micrograms daily. Depression, muscle pain, precordial distress and anorexia have been abolished on the third to fifth day of treatment. Striking relief of depression amounting almost to euphoria occurred in 2 patients. Active distaste for the diet was replaced by willingness, even eagerness, to eat it although there was no significant increase in the amount consumed. The striking ashy pallor disappeared in four days. Insufficient time has elapsed for evaluation of other evidences of correction of physiologic disturbances.

tute of Health.

9. Biotin concentrate was supplied by the S. M. A. Corporation,
Chagrin Falls, Ohio

Immediately after the administration of 150 micrograms of biotin concentrate the urinary excretion rose rapidly from a deficiency level of 3 to 7 micrograms a day to a level approximating 55 micrograms. This level was maintained until the dose was increased to 300 micrograms a day, when there was a further stepwise increase in biotin excretion to a level approximating 140 to 150 micrograms daily with an immediate fall to a level slightly lower than those found in patients eating a normal diet when medication was discontinued The excretion chart of patient 3 is typical of the patients observed.

SUMMARY AND CONCLUSIONS In observations on human subjects maintained on a diet very poor in all vitamins of the B group except riboflavin supplied by egg white, supplemented with adequate amounts of available synthetic vitamins, in which at least 30 per cent of the total calories were supplied by desiccated egg white, definite symptoms and signs were produced.

Symptoms and signs were rapidly cured by the parenteral administration of a biotin concentrate in doses representing 150 to 300 micrograms of biotin per

The phenomena observed were similar to some of those seen in spontaneous avitaminoses.

## AGNOGENIC MYELOID METAPLASIA OF THE SPLEEN

REPORT OF FIVE CASES ILLUSTRATING DIAGNOSTIC DIFFICULTIES AND THE DANGER OF SPLE-NECTOMY AND RADIATION THERAPY

## CARL REICH, M.D.

Associate in Medicine, Lenox Hill Hospital; Hematologist, Hospital for Joint Diseases, and Associate Physician, City Hospital AND

> WILLIAM RUMSEY JR, M.D. House Physician, Lenox Hill Hospital NEW YORK

The clinical picture of splenic enlargement with anemia has always been of great interest to the internist. the surgeon and the pathologist. This syndrome is observed from infancy up to old age and is associated with many different conditions, most of which are little understood although they are characterized by definite names. Thus we have only to enumerate such names as erythroblastosis fetalis, Cooley's anemia, chronic subleukemic myelogenous leukemia, splenic anemia and Hodgkin's disease. Each one brings to mind a rather definite clinical and pathologic picture, and yet there are many so-called atypical cases in which the disease defies classification both during life and after death of the patient.

In a recent report Jackson, Parker and Lemont integrated as a clinical entity a syndrome characterized by splenic enlargement and the presence of immature red and white cells in the blood. This condition is often erroneously diagnosed as chronic myelogenous leukemia, splenic anemia, erythroblastosis or Hodgkin's disease. Frequently the picture is so confusing that a splenectomy is performed, with unfavorable results

It is our purpose in this communication to cite briefly 5 additional cases of this disorder and to point out the diagnostic errors, both clinical and pathologic, which were made until the picture was finally clarified.

^{8.} Biotin determinations were done by Dr. I-bell of the National Insti-

^{1.} Jackson, Henry, Jr.; Parler, Frederic, Jr., and Lerson, H. M. New England J. Med. 222:985 (June 13) 1949

As a final check, our clinical and pathologic material was passed on by Jackson and Parker; so we are sure that we are dealing with the condition described by them

REPORT OF CASES

CASE 1.—Y. J., a white man aged 52, an electrician, first admitted to the hospital on Jan. 14, 1935, had had ten teeth extracted six months prior to admission and afterward had noticed shortness of breath on mild exertion, generalized weakness and night sweats. The sweats were constant, occurring one or two hours after midnight every night. The weakness had become more severe during the last two months.

His past history included gonorrhea twenty years and a fracture of the ankle twenty-two years before admission; otherwise his general health had been good. The family history

was irrelevant.

Physical examination showed that he was well developed and nourished but appeared chronically ill. There was no icterus. The skin was of fair turgor and gave evidence of some loss of weight. It had a peculiar, waxy, light yellow tinge. The mucous membranes of the mouth were pale. The heart showed a soft systolic murmur at the apex which was not transmitted. The spleen was greatly enlarged, extending medially to the umbilicus and 4 fingerbreadths below the umbilical line on the left. No axillary, cervical or inguinal adenopathy was noted. The remainder of the physical examination was negative.

On January 17 examination of the blood showed hemoglobin 46 per cent, red blood cells 2,500,000, white blood cells 7,600, mature polymorphonuclear leukocytes 69 per cent, band cells 5 per cent, young forms 2 per cent, lymphocytes 5 per cent, monocytes 9 per cent, myelocytes 6 per cent, promonocytes 2 per cent, eosinophils 1 per cent, basophils 1 per cent, reticulocytes 5 per cent and platelets 150,000. There were severe poikilocytosis and anisocytosis, and many nucleated red blood cells were seen.

The following day a sternal puncture was done which gave no evidence of leukemic infiltration. A fragility test of the red cells showed that hemolysis began in a 0.425 per cent salt solution and ended in a 0.350 per cent salt solution. The Wassermann reaction was negative.

A roentgenogram of the chest showed a cardiac shadow large in all diameters. The lungs showed no evidence of tuberculosis or metastases. A flat film of the abdomen showed a shadow in the left upper quadrant and gave evidence of slight enlargement of the liver.

It was felt that the patient might benefit by splenectomy, provided the hemoglobin level could be raised preoperatively by transfusion, since the removal of such a large spleen would probably cause a great blood loss. Accordingly, the patient received three transfusions of 500 cc. of blood at three day intervals. After the last transfusion he had a reaction, the temperature rising to 104.2 F. Hemoglobinuria was not noted. The liver became somewhat enlarged during the ten days. The preoperative hemoglobin content was 60 per cent and the red cell count 3,200,000.

On February 7 splenectomy was performed with the patient under spinal anesthesia. The preoperative diagnosis was a tentative one of Banti's disease. The patient withstood the procedure well. The spleen weighed 2,850 Gm. The serosa of the spleen was free from adhesions. The surface was for the most part mottled red and reddish brown. There were also some irregular, scattered, dark purplish areas and a number of contracted, linear, yellow areas. The largest of these areas measured 2.2 by 0.4 cm. and on section showed irregular, yellowish, contracted tissue about which were some purplish petechiae. This tissue was firmer than the surrounding splenic substance. On the lateral surface was an irregular, orange red, slightly raised area 3.5 by 1 cm. Section through this area showed orange red tissue which extended in an irregular pattern down about 3.5 cm. and was firm, granular and shiny. Other sections of the cut surface were granular, shiny and reddish brown.

Microscopically the spleen showed typical myeloid metaplasia with numerous megakaryocytes and hemochromatosis.

The patient lived five years after splenectomy. In that time he had more than twenty separate hospital admissions and received more than fifty blood transfusions. His complaints were always essentially the same: dyspnea, weakness and night sweats. The last year before death dependent edema developed, and he eventually died from cardiac failure and terminal endocarditis

Autopsy showed advanced osteosclerosis of all bones, particularly the femur, tibia and skull cap. Microscopically there were no changes indicative of leukemia in liver, kidney or marrow. The lymph nodes showed extreme infiltration with megakaryocytes without leukemic changes. There were extramedullary areas of hemopoiesis in liver and lymph nodes. There was also evidence of hemosiderosis in the pancreas and liver. The heart was enlarged and showed evidence of myocardial degeneration.

Case 2.—T. F., a Russian woman aged 44, a dressmaker, was first admitted to the hospital on Oct. 14, 1938. Eight years before an enlarged spleen had been discovered during a routine examination for a "nervous breakdown." At that time she was in another hospital for one week, where the diagnosis of myelogenous leukemia was made. She was followed by the outpatient department for a number of years. No roentgen therapy was given because of a persistently low white cell count.

Since that time she had felt an increasing weight and sense of pressure in the left side of the abdomen. She had lost about 6 pounds (2.7 Kg.) in the last eight years. For the past two years her appetite had been poor and she practically always felt nauseated. Two and a half months before admission she had had a bout of vomiting with diarrhea following the ingestion of soft shelled crabs. She was seen by her physician, who sent her to another hospital for a transfusion, after which she felt better. She entered Lenox Hill Hospital after this for further study.

Her past history included diphtheria at the age of 15, with no sequelae, and a progressive scoliosis first noted at the age of 12, for which she was put in a plaster cast without any curative result. Her last menstrual period had been at the age of 43, a year prior to admission. She had been pregnant twice, once ten years and once eight years before admission. Both pregnancies were terminated for pernicious vomiting. The remainder of her past history was not significant. The family history was noncontributory save that two sisters had had "thyroid trouble."

Physical examination showed that the patient was poorly developed but fairly well nourished. The skin and mucous membranes were pale. The thyroid was somewhat enlarged along the lower margin, with a firm strip of tissue across the neck. No palpable cervical glands were present. The heart and lungs were normal. The thorax was asymmetrical. The spine showed scoliosis to the right, with the maximum curvature at about the fifth thoracic vertebra. There was moderate lordosis of the thoracic portion of the spine, with flaring of the right scapula. The entire left side of the abdomen was occupied by a smooth, firm, ovoid mass extending from the costal margin to below the iliac crest and from the midaxillary line to 3 cm. beyond the midline. There was moderate tenderness in the epigastrium medial to the mass and in the right upper quadrant. The edge of the liver and the kidneys were not palpable.

The hemoglobin content was 75 per cent, the red blood cell count 3,600,000 and the white cell count 13,800, with the following differential count: mature polymorphonuclear leukocytes 42 per cent, band cells 11 per cent, young forms 14 per cent, lymphocytes 22 per cent, monocytes 8 per cent, eosinophils 2 per cent and basophils 1 per cent. The red cells showed anisocytosis, poikilocytosis and polychromasia. There were 2 normoblasts per hundred white cells. Another differential count five days later showed 13 per cent myelocytes, 5 per cent myeloblasts and 2.7 per cent reticulocytes. Hemolysis of the red cells began in a 0.375 per cent solution, showing an increased iragility.

Roentgen examination of the chest showed scoliosis, but no mediastinal lymph node enlargement was seen. Roentgenograms of the long bones showed no osteosclerosis.

Since the diagnosis was doubtful and the presenting complaint was the discomfort caused by the spleen, peritoneoscopy and a splenic biopsy were performed. These ruled out the possibility of leukemia or Hodgkin's disease but did not result in a definite diagnosis. The pathologic diagnosis from the biopsy was "probable neoplasm of the spleen." Accordingly, the patient was given a transfusion of 500 cc. of whole blood preoperatively, and on November 14 splenectomy was done, followed by a postoperative transfusion of 300 cc. She did fairly well and was discharged two weeks after splenectomy.

The spleen weighed 1,800 Gm. The surface was firm, gray red and glistening. On section there was a slightly increased resistance to the knife. Scattered over the cut surface there were many slightly raised, fairly well circumscribed, yellow red nodules measuring 0.3 to 1.2 cm. in diameter which were somewhat firmer than the surrounding tissue.

Microscopically the spleen showed myeloid metaplasia with many megakaryocytes, nucleated red blood cells, compression of the malpighian corpuscles, which were few in number, and but little fibrosis.

The patient has had five subsequent admissions since removal of her spleen:

From November 8 to November 16 the patient entered because of severe epistaxis which could not be controlled at home by packing. This subsided after conservative treatment and one transfusion. While she was in the ward, a vesicular eruption developed on an erythematous base over the left forearm and chest. Biopsy was done of material from one lesion, and the condition was diagnosed folliculitis cheloidalis.

From Jan. 5 to Jan. 20, 1940 the patient returned because of abdominal cramps and diarrhea. There was no evidence of any acute abdominal condition. The hemoglobin content was 60 per cent, the red cell count 2,500,000 and the white cell count 16,000. There were many nucleated red cells. A gastrointestinal series was done and showed no pathologic conditions. The patient was given one transfusion and discharged.

From May 20 to May 21 the red cell count was 1,800,000, the hemoglobin content 41 per cent and the white cell count 18,700. The patient entered this time for a transfusion. She had been well, except for nocturnal pain in the chest radiating through to the back and progressive fatigue since her last admission.

From July 26 to July 30 the patient entered again for transfusion, complaining of weakness and fatigue. Physical examination showed the liver to be enlarged to the umbilicus for the first time. The heart showed a loud, blowing systolic murmur and gallop rhythm. The gallop rhythm disappeared after two 500 cc. transfusions. The reflexes were generally hyperactive throughout, and there was a transient ankle clonus present. She was somewhat improved on discharge. On admission the blood showed hemoglobin 25 per cent, red cells 1,200,000 and white cells 13,200. The smear showed many normoblasts.

November 19 to November 23 the patient was well until ten days before admission, when she had a severe, persistent, unilateral headache and had become progressively weaker during the preceding seven days. The hemoglobin content was 20 per cent, the red cell count 1,100,000 and the white cell count 9,700, with many normoblasts present. The icterus index was 5.0. A roentgenogram showed no osteosclerosis at this time. The fragility test showed hemolysis beginning in a 0.375 per cent salt solution and completed in a 0.300 per cent salt solution. The patient was somewhat improved on discharge.

The patient was readmitted on Feb. 4, 1941 with weakness and severe anemia. The blood showed a hemoglobin content of 8 Gm., 2,200,000 red cells and 4,800 white cells, with 37 per cent neutrophils, of which 5 per cent were nonfilamented, 46 per cent lymphocytes, 16 per cent monocytes and 1 per cent basophils. Platelets were normal. There were 4 per cent nucleated red cells per hundred white cells.

The bone marrow showed fibrosis. The remaining marrow was normal in cellular constituents. The patient was given two transfusions of 500 cc. of whole blood and discharged improved.

Case 3.—M. E., an Austrian woman aged 48, entered the hospital on Dec. 16, 1937 because of a progressive weight loss of 22 pounds (10 Kg.) during the preceding year, along with frequent watery stools, occasional tarry stools, and the inter-

mittent passage of worms varying in length from 1 to 2 inches (2 to 5 cm.). She had had moderate anorexia during the few months before admission. She had not consulted a physician for these symptoms.

Her past history revealed that catamenia had ceased a little more than a year previously, with only one episode of vaginal bleeding, lasting eight days and accompanied by pelvic discomfort, thirteen months before. Otherwise the past history and the family history were noncontributory.

Physical examination showed that the woman was chronically ill, with slightly jaundiced scleras. There was no lymphadenopathy. The heart had a loud systolic murmur best heard over the base, with a blood pressure of 128 systolic and 60 diastolic. The entire left side of the abdomen was filled by a firm mass extending to the level of the umbilicus. No nodules were felt. The liver was likewise enlarged in the region of the flank to the level of the umbilicus.

Examination of the peripheral blood revealed hemoglobin 80 per cent; the red blood cell count was 4,200,000 and the white cell count 10,800 of which the differential count was mature polymorphonuclear cells 81 per cent, band cells 6 per cent, lymphocytes 3 per cent and monocytes 10 per cent. Reticulocytes constituted 1.2 per cent. Among the red cells there were many poikilocytes and microcytes. The icteric index was 8. The bleeding and clotting times were normal. Splenic puncture was suggested, but it was refused by the family physician, who desired the patient to have roentgen treatment to the spleen to shrink it. This was done, but after thirteen treatments of 200 roentgens, high voltage therapy was discontinued because of a low white cell count of 1,700, with 76 per cent polymorphonuclear leukocytes, 22 per cent lymphocytes and 2 per cent eosinophils. At this time the patient was discharged home to convalesce without a diagnosis having been

About two weeks later, on Jan. 22, 1938, the patient was readmitted for further study and treatment. The spleen had become enlarged in the interim since discharge and now reached almost to the iliac crests. The blood showed hemoglobin 59 per cent, red cells 3,000,000 and white cells 2,150; the differential count showed 84 per cent polymorphonuclear leukocytes (9 per cent band cells), 14 per cent lymphocytes, 2 per cent monocytes and I nucleated red cell per hundred white cells. On February 14 a splenectomy was done, no definite diagnosis having been reached preoperatively. The patient was given postoperatively a transfusion of 500 cc. of whole blood, and her convalescence was smooth. A check-up examination done on May 26 showed hemoglobin 89 per cent, red cells 6,000,000 and white cells 66,000; the differential count showed 40 per cent polymorphonuclears, 19 per cent band cells, 25 per cent lymphocytes, 10 per cent monocytes, 5 per cent eosinophils and 3 per cent basophils. There were 18 nucleated red cells and 2 erythroblasts per hundred white cells, urea nitrogen was 14.5, creatinine 0.5, uric acid 4.4, sugar 78, carbon dioxide 48.1, cholesterol 184 (free 59, or 32 per cent, ester 25), and in the galactose tolerance test all specimens were negative for

The Wassermann reaction was 2 plus on December 21 and negative on December 24. Total protein was 6.92, albumin 4.64 and globulin 2.28. Examination of the urine gave negative results

Grossly the spleen was smooth, glistening, dark red brown and firm. On section the cut surface was similar in appearance to the liver, being homogeneously dark red, streaked here and there with lines of gray tissue and prominent channels.

Microscopically the spleen showed fibrous thickening of the capsule, trabeculae and reticulum. The malpighian corpuscles were reduced in number. There were megakaryocytes, myclocytes, plasma cells, eosinophils and a few polymorphonuclear leukocytes. There were no infarcts. A tentative diagnosis of Hodgkin's disease was made.

The patient had two subsequent admissions, July 17 to 19 and Oct. 22 to Nov. 7, 1938, both because of severe epistaris, uncontrollable by packing at home. Transfusion was not necessary.

She was followed in the outpatient department from Nov. 10, 1938 until the present time. On Nov. 23, 1938 it was noted that the patient had a perforated septum. She continued to have epistaxis, which was treated locally with epinephrine and a thromboplastic substance. On Oct. 19, 1939 the patient complained of considerable itching of the legs. Roentgen treatment to the liver was given because of the diagnosis of Hodgkin's disease and to relieve itching. On Feb. 8, 1940 the patient complained of soreness of the tongue and bruising easily. By March severe glossitis had developed. The patient was given 100 mg. of nicotinic acid three times daily and two tablets of ferrous sulfate twice daily. On October 10 both glossitis and itching were somewhat improved. The skin was bronzed at that time. The liver was still enlarged, and the hemoglobin content was 15 Gm.

The patient was last seen on June 5, 1941. She had lost considerable weight, the liver was much enlarged and the skin was deeply bronzed. The blood showed hemoglobin 16 Gm., red cells 5,200,000 and white cells 41,000; the differential count showed polymorphonuclear leukocytes 51 per cent, of which 26 per cent were nonfilamented, lymphocytes 4 per cent, eosinophils 16 per cent, basophils 2 per cent, myelocytes 13 per cent and myeoblasts 4 per cent. The polymorphonuclear cells showed toxic granulations, and many abnormal platelets were seen.

Case 4.—D. M., a German housewife aged 55, admitted to the hospital on Jan. 2, 1940, had noticed a swelling of the upper left portion of the abdomen five years before admission. The swelling was painless except for burning in this region on exertion. She had noted onset of weakness also at this time. The swelling had increased in size, and the patient had sought medical aid three years before admission. Since then she had had periodic courses of roentgen therapy, with a resulting decrease in the size of the mass, increased strength and amelioration of pain. The last roentgen treatment had been in May 1939, and she had entered the hospital for splenectomy, which was advised by her physician. There was no history of weight loss or jaundice. For an indefinite period she had had dyspnea and palpitation on climbing two flights of stairs. The family and past histories were not significant.

Physical examination showed her to be somewhat pale and only moderately ill. The upper teeth were missing, and the thyroid was of moderate size. There were pingueculae in the conjunctivas. The heart was moderately enlarged to the left. There was a rough reduplicated first sound heard loudest at the apex. The blood pressure was 185 systolic and 100 diastolic. There were many brown nevi on the skin of the abdomen. The flanks were bulging and were dull with a moderate fluid wave. The spleen was enlarged to 3 inches below the umbilicus. It was firm, smooth, nontender and movable. The liver was enlarged to 4 fingerbreadths below the right costal margin. There was also a tender, rounded bulge in the right costovertebral angle which seemed to be independent of the liver.

Laboratory studies showed the hemoglobin content to be 85 per cent, the red blood cell count 4,200,000 and the white cell count 7,500, with mature polymorphonuclear leukocytes 72 per cent, band cells 5 per cent, young forms 5 per cent, myelocytes 2 per cent, lymphocytes 6 per cent, monocytes 4 per cent, eosinophils 3 per cent and basophils 3 per cent. The red cells showed anisocytosis, poikilocytosis and basophilic stippling. A sternal puncture showed essentially normal marrow. The fragility test of the red cells showed normal resistance to saline solution. The bleeding and clotting times were normal.

Because of the mass in the right flank, intravenous urographic examination was performed, which showed bilateral diminished renal function. The pelves and calices were only faintly visualized.

On the eighth day after admission, splenectomy was performed after a preoperative diagnosis of Banti's syndrome. A biopsy specimen of the liver was obtained at the same time. Postoperatively the patient was given a transfusion of 500 cc. of whole blood. Save for mild pyelitis caused by Escherichia coli,

which responded to sulfanilamide, the patient's convalescence was uneventful. She was discharged one month after operation.

Biopsy of the liver showed myeloid metaplasia. The weight of the spleen was 1,895 Gm. The capsule was thin and glistening, although in one area it was thickened and yellow gray. Several small nodules, of a consistency similar to that of the surrounding tissue, projected through the surface. On section the cut surface was smooth, firm, beefy and pink red, with fine streaks of gray white running through it. The follicles were not visualized. Large amounts of fluid blood ran from the cut surface.

Microscopically the spleen showed diffuse fibrosis and infiltration with small round cells, polymorphonuclear leukocytes, eosinophils and giant cells, these last being very numerous. The sinusoids were congested with blood. The malpighian corpuscles were absent.

Two months after discharge the patient reported that she had gained 10 pounds (4.5 Kg.) and felt well. She was seen again on June 9, five months postoperatively, at which time her general condition was good. She complained of pain around the stomach, and there was a large mass in the region of the liver, the nature of which was unknown. She was advised to enter the hospital for a check-up but did not do so.

On Jan. 29, 1941 the patient was readmitted to the hospital with swelling of the ankles. She was found to have cardiac enlargement with a mitral systolic murmur. The blood showed hemoglobin 13.5 Gm., red cells 4,200,000 and white cells 134,000, with 84 per cent polymorphonuclear neutrophil leukocytes, of which 57 per cent were nonfilamented, 6 per cent myelocytes, 7 per cent lymphocytes, 1 per cent monocytes and 2 per cent eosinophils and there were 6 nucleated red cells per hundred white cells. The sternal marrow showed fibrosis, otherwise hyperplasia of the remaining granular elements. She was given digitalis and discharged improved.

Case 5.—M. T., a Negro aged 48, admitted to the City Hospital on Sept. 7, 1940, had been well until three months prior to admission, when dyspnea on exertion and a productive cough developed. The cough was associated with pain at the costovertebral angles. Two months before admission he noticed that both ankles were swollen. During the previous three weeks the dyspnea had increased gradually, so that at the time of admission he was unable to walk without discomfort. He did not complain of orthopnea or pain in the chest.

A family history was not given. He had had an attack of "rheumatism" twenty-four years before and had had nocturia, urinating two or three times a night, for an indefinite period. Otherwise his general health had been good until the onset of his present illness.

On physical examination the patient looked somewhat older than his stated age and was lying quietly in bed. The blood pressure was 124 systolic and 58 diastolic. The pupils reacted sluggishly to light. The mucous membranes were pale and the teeth carious. Examination of the heart and lungs gave negative results. On admission, neither the spleen nor the liver could be palpated. There was edema (3 plus) of the aukles. Rectal examination showed hemorrhoids. There was a questionable generalized cervical adenopathy.

About a week after admission the spleen became palpable and gradually increased in size until death. Two weeks after admission the liver was felt, and it gradually enlarged until it was 3 fingerbreadths below the costal margin.

Examination of the blood on the day of admission showed hemoglobin 25 per cent, red blood cells 1,600,000 and white cells 86,000, with 28 per cent polymorphonuclear leukocytes, 24 per cent stab cells, 4 per cent metamyelocytes, 20 per cent myelocytes, 3 per cent granuloblasts, 3 per cent progranulocytes A, 3 per cent eosinophils and 10 per cent lymphocytes. The red cells showed anisocytosis and poikilocytosis, together with some nucleation of red blood cells. A fragility test showed hemolysis of the red cells beginning in a 0.5 per cent salt solution and complete hemolysis in a 0.32 per cent salt solution. The icteric index varied between 16 and 35. On October 17 the reticulocyte count was 8.5 per cent. Gastric analysis showed no free

hydrochloric acid. The nonprotein nitrogen level was 30. A Wassermann test done at this time gave negative results.

Roentgen examination of the chest showed some scarring in the left apex. Examination of the bones showed no osteosclerosis. Retrograde pyelography and tests of the function of the kidneys gave evidence of bilateral chronic pyelonephritis and hydronephrosis.

Examination of the urine on repeated occasions showed the presence of erythrocytes and white cells but no casts.

The patient's course in the hospital was one of progressive asthenia, despite repeated transfusions which resulted only in slight improvement. Terminally, bilateral bronchopneumonia developed; he became irrational, had a uriniferous odor to his breath and died nine weeks after admission (five months after the onset of his illness).

Autopsy showed, in addition to lesions of myeloid metaplasia, acute and chronic pyelonephritis, acute bilateral bronchopneumonia and fibrinous pericarditis.

The spleen weighed 700 Gm. The capsule showed many areas of thickening, and the parenchyma was firm and fleshlike. The pulp could not be scraped at all. Microscopically it showed typical myeloid metaplasia and many megakaryocytes.

The liver and lymph nodes also showed many megakaryocytes. The bone marrow obtained was erythroblastic in type.

#### COMMENT

In not one of these cases was the diagnosis, either clinical or pathologic, correct. The clinical diagnoses were splenic anemia in 4 instances and leukemia in 1. The pathologic diagnosis of the condition of the excised spleen (the slides were sent to several reputable pathologists) was either atypical Hodgkin's disease or atypical leukemia.

On the strength of the clinical diagnosis splenectomy was performed, and because of the pathologic diagnosis radiation therapy was occasionally employed.

From a perusal of the case histories it is evident that both splenectomy and radiation therapy are harmful in this condition. The causes of the myeloid metaplasia are not known, but removal or depression of any of the foci seems to shorten the lives of the patients. This fact is illustrated not only in our cases but also in those of Jackson's series. He notes 2 cases in which death occurred shortly after irradiation. Three of his patients and 4 of ours did badly after splenectomy. Therefore, from a therapeutic point of view it is important to be on the lookout for this syndrome. It is easily confused with Banti's disease, hemolytic anemia, splenomegaly and atypical leukemia. Sternal puncture will rule out leukemia, since no leukemic infiltration has been observed in the marrow of these patients. Banti's disease and hemolytic anemia do not show both immature red and immature white cells in the peripheral blood. Normal red cell fragility and absence of spherocytes also distinguish agnogenic myeloid metaplasia from hemolytic anemia.

In dubious cases a prolonged period of observation is advisable, and, if necessary, a splenic biopsy can be The presence of taken through the peritoneoscope. myeloid metaplasia, many scattered foci of immature red and white blood cells and megakaryocytes definitely establishes the diagnosis of agnogenic myeloid metaplasia of the spleen.

## CONCLUSIONS

- 1. Agnogenic myeloid metaplasia of the spleen is difficult to diagnose and must be differentiated from Banti's disease, hemolytic anemia and leukemia.
- 2. Splenectomy and irradiation are definitely contraindicated.

## ETHER ANESTHESIA IN THE PRESENCE OF PULMONARY TUBERCULOSIS

HENRY K. BEECHER, M.D. AND RALPH ADAMS, M.D. BOSTON

Great and sometimes dangerous efforts are made to avoid the use of ether anesthesia when surgery must be carried out on patients who happen to be suffering from tuberculosis; accordingly, it is important to examine the basis for the prejudice against the use of ether for tuberculous patients. As will be observed, this prejudice does not appear to be established on a secure founda-We have therefore studied the results of using ether in operations on a carefully followed series of patients and have compared our results with those from other clinics.

Our wish to give ether an adequate trial was based on extensive observations, made in many general surgery clinics as well as our own, that ether is extraordinarily well tolerated by the cachectic patient and by the patient whose respiratory and circulatory systems may be grossly impaired.1

## CURRENT BASIS FOR THE PREJUDICE AGAINST THE USE OF ETHER FOR PATIENTS WITH PULMONARY TUBERCULOSIS

Where the prejudice against ether originated is not clear, but the current basis for it can be found in many published opinions over the past twenty or thirty years. These articles vividly describe the dangerous consequences of using ether anesthesia for tuberculous patients: It is plainly a bad agent to use, or so it is said, for "ether will dissolve the lipoid capsule surrounding the tubercle bacilli and allow them to be disseminated throughout the body." Liquid ether burns the skin, and so on; therefore "it must follow that the delicate mucosa of the airway will be dangerously (A considerable difference irritated by the agent." must exist in the effect produced by liquid ether and the concentration needed for full surgical anesthesia, namely 0.14 cc. of liquid ether per thousand cubic centi-

From the Anesthesia and Surgical Services of the Massachusetts General Hospital.

This is the third in a series of papers dealing with the problems of anesthesia for thoracic surgery? (Principles of Anesthesia for Lobectomy and Total Pneumonectomy, Acta med. Scandinav., supp 90:146, 1938, and the paper referred to in footnote 3).

1. In addition to the use of ether in a large number of patients at the Massachusetts General Hospital, with nearly all kinds and degrees of heart disease, ether has been our choice for patients suffering from many forms of chronic pulmonary disease as emphysema, chronic bronchitis, chronic lung abscess, bronchiectasis and cancer. In the surgical treatment of these, ether has been employed as the anesthetic agent of choice in 65 total pneumonectomies and 222 lobectomies with unusually good end results?

2. These include, together with others:
Blumberg, N.: Ether Anesthesia and Tuberculosis with Report of Case, M. J. & Rec. 125:462 (April) 1927.

Eversole, U. H., and Overholt, R. H.: Anesthesia in Thoracic Surgery with Special Reference to Cyclopropane, J. Thoracic Surgery with Special Reference to Cyclopropane, J. Thoracic Surger of Various Concentrations of Anesthetic Vapor, Brit. M. J. 2:921 (Nov. 11) 1922.

Frelich, E. B., and Ragino, O. B.: Ether in Tuberculosis, Illinois M. J. 56:67 (July) 1929.

Gwathmey, J. T.: Anesthesia, ed. 2, New York and London, Macmillan Company, 1925, p. 329.

Magill, I. W.: Anesthesia for Thoracoplasty in Pulmonary Tulerculosis, Lancet 1:295 (Feb. 8) 1930.

McDowall, R. J. S.: The Effect of Anesthetics on the Lungs, Brit. M. J. 1:61 (Jan. 13) 1923.

Shelley, L. W.: Anesthesia in Thoracic Surgery, Tubercle 5:13 (Oct.) 1923.

Zueblin, Ernst: Results of Ether Anesthesia on Suspected and Manifest Cases of Pulmonary Tuberculosis, Am. J. Surg. 24:44 (arctitistis) 1923.

meters of air breathed.) Evidence that irritation from good ether anesthesia is probably not of morbid or mortal importance has been considered elsewhere.3 This probability receives outstanding support in the observations of King 4 and others that an equal number of postoperative pulmonary complications are found in general surgery after ether, local or spinal anesthesia.

While opinions are divided at present concerning the advisability of using ether in operations on tuberculous patients, as shown in the following examples, there have been more to oppose than to approve or condone its use.5 Following correspondence with about one hundred anesthetists, surgeons and internists, Eastman 6 found a great lack of unanimity of opinion as to the advisability of employing ether in the presence of pulmonary tuberculosis. Indeed, opinion varied from the conviction that ether would cure the tuberculosis to the belief that its use in operations on tuberculous patients is unqualifiedly foolhardy and, if administered to tuberculous patients, "sends them to their graves in less than six months." Unfortunately the statements of those questioned appeared to be made on the basis of memory and opinion rather than on a serious attempt to get at the facts through careful observation and record keeping.

Grandy presents a vigorous condemnation of ether administered by inhalation to patients with pulmonary tuberculosis, and then at once speaks approvingly of ether by rectum. He concluded with the remark "I shall give only these 2 cases [of active tuberculosis] but these are enough to prove [!] that ether administered by rectum is entirely different from ether by inhalation." Among those who permit ether to be considered at all, this attitude is quite common. It ignores, of course, the well established fact that ether is almost entirely (above 90 per cent) excreted through the lungs. The alveolar air at once comes into near equilibrium with the ether tension in the blood, so that throughout maintenance and recovery the lungs are exposed to ether at the same tension, except for the brief induction period, as they would have been if the ether had entered through them rather than through the rectum. When ether is administered rectally, the difficulty of correlating the dose with the desired depth may in some cases be responsible for needlessly high concentrations reaching the lungs and acting for a longer time than when ether is given by inhalation.

While many papers have been found which deal with the use of ether in the presence of pulmonary tuberculosis, no report of careful case studies has been found. The articles referred to, apparently chiefly based on casual memory and opinion, seem to be the basis for the widespread belief as expressed in standard textbooks that ether is contraindicated or to be used with the greatest reluctance in the presence of tuberculosis.

LAPERIMENTAL STUDIES OF THE PAST CONCERNING THE USE OF ETHER IN THE PRESENCE OF PULMONARY TUBERCULOSIS

It is interesting to observe that whereas severe condemnation of ether for the tuberculous is common in the papers based on opinion, the three objective attempts

3 Beecher, H. K. Some Controversial Matters of Anesthesia for Thoracic Surgery, J. Thoracic Surg 10: 202 (Dec.) 1940
4 King, D. S. Postoperative Pulmonary Complications: The Part Played by Anesthesia, Anesth. & Analg. 12: 243-248 (Nov. Dec.) 1933
5 Savage, W. E.: The Treatment of Tuberculosis in Ether, Ohio State M. J. 14: 480 (July) 1917; The Treatment of Tuberculous Peritomitis by Ether, Anesth. & Analg. 7: 137 (Max-June) 1928, and, with the exception of Rogers, the references cited in note 2
6 Eastman, J. R.: Anesthesia in the Tuberculous, Am. Rev. Tuberc. 10: 276 (Max) 1924.
7 Grands, C. R.: Ether Anesthesia in Cases of Pulmonary Tuberculosis, Am. Rev. Tuberc. 16: 262 (Sept.) 1927.

to study the problem experimentally have come to quite another conclusion:

Corper 8 observed that ether to the point of light anesthesia daily for about a month did not increase the susceptibility of guinea pigs to a virulent human tuberculosis infection in comparison with controls.

Lawrason Brown and Petroff 9 studied three groups of tuberculous guinea pigs. In each of the first two groups, 4 pigs were exposed to ether anesthesia and 4 used as controls. In the third group 3 pigs were used in each test and control group. In the first group, two weeks following infection, ether anesthesia was administered at weekly intervals for seven weeks. The etherized group lived longer than the controls. The second group was treated the same as the first except that anesthesia was administered every four days. The etherized and control animals lived the same length of time. In the third group anesthesia was administered daily for fifteen days, and then the animals were killed. The tuberculosis was equally extensive in the test and the control groups. They conclude that "ether anesthesia, whether prolonged or of short duration, whether light or profound, exerts on tuberculous guinea pigs no injurious effect as noted in length of life or extent of disease."

Rogers 10 subjected 18 guinea pigs to tubercle bacillus infection; half received "complete ether anesthesia" daily for eleven days and half were used as controls. duration (5 pigs) and extent (4 pigs) of the disease were identical in the two groups. He concluded that ether anesthesia has no effect on the disease process of

Corper,8 Brown and Petroff 9 and Rogers 10 have all reported that repeated ether anesthesia in tuberculous animals does not result in a more rapid spread of the disease process. Rogers concludes that the "rapid spread of the disease [which] often followed operations on the tuberculous under ether anesthesia" is due to mechanical factors. He suggests that spread of the disease is due to "aspiration from the apical lesion, usually a cavity, to the larger areas of the lung substance, causing aspiration bronchopneumonia and after a few months death." Any factors such as labored. respiration or excessive body movements aid in this aspirating process, according to him. He states further that "ether anesthesia not only causes labored respiration but increases the secretions diluting the infectious germ laden sputum and in this way causes a general spreading of the disease germs." He goes on to say that, "in the laboratory animal, the disease is anatomically different, inasmuch as the chronic ulcerative form is not present, but more of a solitary tubercle formation without ulceration, hence the aspirating of infectious material does not occur."

Whether or not Roger's explanation is correct, it is interesting that the only objective examinations made of this problem, the experimental studies, fail to provide any grounds for discrediting the employment of ether for the tuberculous patient. While the experimental studies leave much to be desired in their attack on the problem, it is probably true, as suggested by Rogers,

⁸ Corper, H. J. Attempts to Reduce the Resistance of the Guiner Pig to Tuberculosis by Means of Various Agents (Including Ether and Chloroform), Am Res Tuberc 2: 887 (Dec.) 1918

9. Brown, Lawrason, and Petroff, S. A. The Influence of Anesthesia on Experimental Tuberculosis in Guinea Pigs, Tr. Nat. A. Prev. Tuberc 15: 292, 1919.

10. Rogers, J. B: Studies in Effects of Nitrous Oxide Oxigen Anesthesia on Animals Infected with Tuberculosis Through the Respiratory Tract, Am. J. Surg. 35: 44 (anesthesia supp.) (April) 1921

that the tuberculosis process is sufficiently different in guinea pigs, ulcerative pulmonary lesions and cavities so rare in them, that the problem at hand cannot be settled by such an approach. With the possible exception of studies in monkeys it is questionable whether any animal experimental work would be of further

TABLE 1 .- Type of Operation and Duration of Anesthesia in 147 Cases

<i>O</i> perations		Average Duration of Anesthesia *
First stage Second stage Third stage	139 106 15	2 hours and 8 minutes 1 hour and 26 minutes 1 hour and 22 minutes
Total	260	

^{* &}quot;Duration of anesthesia" was taken as the period from the beginning of induction until the operation was completed.

value in giving information on the problem at hand; certainly any attempts to get more help from animals would have to be very extensive. However, the three independent studies referred to, having arrived at a common conclusion, need not be passed by entirely. This negative evidence thrice obtained is of some value. Evidently the belief that the lipid solvent action of ether is a danger is on a less secure basis than has been supposed. It is apparent that, even in the highly susceptible guinea pig, ether anesthesia does not aggravate the disease process. This point at least can reasonably enter to a limited degree into our consideration.

While statements based on opinion appear to have served as the basis for the numerous strictures against ether in the tuberculous, so many men have been of this view that one cannot lightly dismiss their statements. A point worth noting here is that nearly all. if not all, of the statements referred to were based on open cone anesthesia, not modern, closed anesthesia. Surely open cone anesthesia is objectionable in these cases (and in many others) for several reasons: vapors breathed are cold. One must deal not only with possible irritation due to the ether itself but also with that due to chilling the lungs. With less than expert cone administration of ether, the concentration of the agent breathed will at times be very much greater than needed and consequently more irritating than necessary. In the great majority of cases, cones are used in a manner that serves to increase considerably the dead space of the airway, with an objectionable elevation of the carbon dioxide tension and a lowering of the oxygen in the air breathed. Often the so-called open cone is nothing short of an asphyxiating tool.

With the simple modern equipment at hand, it is easy to avoid these difficulties encountered with the open cone. We believed that ether employed in modern closed anesthesia with the carbon dioxide absorption technic is worthy of trial and reevaluation in tuberculosis, for, as pointed out earlier, ether has many desirable qualities for the very sick. Ether administered in a closed system can hardly be compared with the agent when it is used by the open drop method.

Accordingly, we have carefully studied for a period of more than five years a series of patients who received "closed" ether anesthesia, notwithstanding their pulmonary tuberculosis. Our major purpose in this paper is to report that experience.

USE OF ETHER IN THE PRESENCE OF PUL-MONARY TUBERCULOSIS AT THE MASSA-CHUSETTS GENERAL HOSPITAL

We began to use ether routinely as the anesthesia of choice for thoracoplasty in patients with pulmonary tuberculosis in October 1935. This beginning was made under the direction of Dr. H. H. Bradshaw. The present study concerns consecutive patients treated from that date through 1940: 229 tuberculosis patients received ether anesthesia for four hundred and four thoracoplasties during this period. While the majority of the patients came from the Rutland Sanatorium, a number of other sanatoriums participated. Since more precise follow-up information was available concerning the Rutland patients, we decided to limit our study to this group: 147 patients who underwent two hundred and sixty thoracoplasties under ether anesthesia.

Details concerning choice of patient for thoracoplasty, surgical indications and procedures and similar material are recorded in a recent paper from this clinic by Adams and Dufault.11 The routine premedication consists of morphine sulfate ½ grain (0.01 Gm.) and atropine ½100 grain (0.00065 Gm.) administered subcutaneously one-half hour before operation. Frequently, soluble pentobarbital 11/2 grains (0.1 Gm.) is given by mouth one hour before operation. Patients are placed in position for operation before anesthesia is induced. During induction, care is taken to prevent straining and cough-The choice of operating time is the afternoon, following elimination of the morning sputum. Anesthesia is administered by means of a closed system apparatus with carbon dioxide absorption (never open cone for these patients). Following a brief nitrous oxide-oxygen induction, with care to avoid anoxemia, ether anesthesia is administered with a high percentage of oxygen. Although intratracheal tubes are used with great frequency in this hospital and are always used in open pleura operations, we rarely use them in the presence of pulmonary tuberculosis. They are used in this case only when the sputum is unusually abundant. We are reluctant to use them in most cases of tuber-

Table 2.-Results * of Thoracoplastics (Including Tuberculous Empyema)

Patients Apparently cuted	Number 75+	Per Cent 59,5+ 8.7+
Arrested	11+ 2+ 18	1.6+ 14.3 0.8
Unimproved	î 16	0.8 12.7
Early†		2.4
Total in this group	126 85+	69.8+

The 21 patients operated on in 1940 have not been included in this and result table, since a one year follow-up is not adequate for indicating disposition; yet all of the operative complications as anoxia and shock pneumonia and atelectasis as well as spread occurring in the 1940 patient have been included in the complications; see table 3.

*According to the National Tuberculosis Association's method of classification.

† That is, within the customarily stated but purely arbitrary two month period following operation.

culosis, for possibly new loci of tuberculous infection might develop in areas of slight trauma to the airway. During operation the patient is maintained in

a slight Trendelenburg position.
With termination of the study reported here, at the end of December 1940, all patients will have been

^{11.} Adams, Ralph. and Dufault, Paul: Surgery in Pulmontry Tuler, culosis, J. Thoracic Surg. 11: 43 (Oct.) 1941.

followed for at least one year after their last anesthesia and operation. It would seem reasonable to suppose that damage possibly caused by the anesthesia would become evident within that time. The "end result" data of table 2 run only until the end of 1939; thus these patients have all been followed for at least two years.

It is unquestionably important in computing end result data in a study of this kind to consider the number of patients studied rather than the numbers of anesthesias and operations; nevertheless, in order to show distribution of type of operation, and frequency and duration of repeated anesthesias, the number of operations has occasionally been considered, as in table 1.

As shown by the study of Adams and Dufault ¹¹ the patients coming from the Rutland Sanatorium to the Massachusetts General Hospital for treatment of their pulmonary tuberculosis gave the following distribution of conditions requiring surgery: cavernous disease, 87 per cent; pulmonary tuberculosis and tuberculous empyema, 5 per cent; pulmonary tuberculosis and mixed empyema, 5 per cent; unstable fibrotic disease without demonstrable cavitation, 3 per cent; early bronchial disease, 1 per cent. Our material deals with consecutive cases from the Rutland Sanatorium; those having tuberculous empyema as well as other unfavorable complications are of course included. The composition of the surgical teams changed frequently. The surgeons varied from members of the house staff to the chief of service.

TABLE 3.—Postoperative Complications (Total number of patients, 147; total number of operations, 260)

Complications	Number	Per Cent Based on Number of Patients	Per Cent Based on Numb r of Operations
Anoxemia and shock Pneumonia	3 4 4 5 3	2.0 2.7 2.7 3.4 2.0	1.2 1.5 1.5

This table, based on the "early" complications (within two months), does not include wound infection (5 cases), late secondary wound hemorrhage (1 case) or form pleura (1 case), since these are clearly unrelated to anesthesia, although these are all set down in the brief case summarles.

### COMPLICATIONS AND DEATHS

Of the 147 patients (two hundred and sixty anesthesias and operations) the early complications and deaths are summarized here. This "early" group covers the customarily stated but purely arbitrary period of two months following operation. The "late" complications and deaths are subsequently grouped together.

### EARLY

- D. P. D., 1935. A man aged 24 died of ipsilateral, acute bronchiogenic spread of tuberculosis nineteen days after the third stage operation.
- J. J. O'L., 1935. A man aged 20 died two days after first stage thoracoplasty and apicolysis of shock and anoxemia.
- T. H., 1936. A man aged 30 died five weeks after first stage thoracoplasty of anoxemia, atelectasis, hemoptysis and ipsilateral spread of disease.
- W. T., 1936. A man aged 26 developed bronchopneumonia two days after first stage thoracoplasty. This completely cleared within two months. After a second stage operation he is now well and working.
- R. L., 1936. A man aged 36 was cyanotic following a first stage thoracoplasty. He was completely relieved by circulatory stimulants and oxygen. Surgical shock followed a second stage operation; this was combated successfully with intravenous saline solution.

- S. P., 1937. A woman aged 36 died three days after a second first stage thoracoplasty with apicolysis (bilateral first stages and one second stage) of hemolytic streptococcus wound infection.
- J. W., 1937. A man aged 46 developed bronchopneumonia four days after a second stage thoracoplasty; this cleared within three weeks.
- R. K., 1937. A man aged 48 died five days after a second stage operation of shock and prolonged circulatory failure.
- M. MacF., 1937. A woman aged 37 died five days after a third stage thoracoplasty of atelectasis and anoxia.
- E. McC., 1937. A man aged 25 died eight days after a second stage thoracoplasty of wound infection.
- A. P., 1938. A man aged 27 died one month after a third stage thoracoplasty of major hemorrhage in wound.
- J. T. H., 1938. A man aged 46 showed ipsilateral spread of disease within three weeks of a first stage thoracoplasty. He died one year later of progression of the disease.
- C. G., 1938. A man aged 41 developed atelectasis, after a first stage thoracoplasty, the day of operation. This persisted for six days, then cleared.
- P. Q., 1938. A woman aged 37 with bilateral cavitation showed exacerbation of the process contralateral to operation within two weeks of a first stage thoracoplasty.
- M. E. H., 1938. A woman aged 32 suffered a torn pleura during a second stage thoracoplasty with resulting pneumothorax.
- G. C., 1938. A man aged 47 immediately after a first stage thoracoplasty developed bronchopneumonia which persisted for twenty-three days. This was followed by ipsilateral spread of the disease and death one year later.
- W. E. G., 1938. A man aged 30 showed, twelve days after a first stage thoracoplasty, signs of a contralateral spread. These cleared in four months and a second stage operation was performed.
- R. P., 1939. A man aged 41 with bilateral cavernous tuberculosis developed bilateral bronchopneumonia two days after a first stage thoracoplasty. This cleared in two weeks.
- J. K., 1939. A man aged 23 had wound infection and ipsilateral spread within a week after a first stage thoracoplasty.
- W. J. F., 1940.¹² A man aged 44 with bilateral tuberculosis showed major wound infection and contralateral spread of tuberculosis following a first stage thoracoplasty. Death was caused by the wound infection and progressive cavernous tuberculosis two months after operation.
- R. U., 1940.¹² A man aged 34 developed atelectasis three days after a first stage thoracoplasty. The reaction required twenty-eight days to subside. Later a second stage operation was performed without unusual incident.
- J. D., 1940.¹² A man aged 27 died thirteen days after a second stage operation, of wound infection.

### LATE

- G. B., 1935. A woman aged 26 died of progression of tuberculosis one year after a first stage thoracoplasty.
- A. F. J., 1935. A man aged 36 died of progression of tuberculosis eight months after a first stage thoracoplasty.
- J. F. O'C., 1936. A man aged 32 died of intestinal obstruction caused by tuberculosis two years after a second stage thoracoplasty.
- M. F., 1937. A man aged 26 died of progression of pulmonary tuberculosis and extrapulmonary tuberculosis nine months after a third stage thoracoplasty.
- J. W., 1938. A man aged 47 died of progression of his disease, six months after a second stage thoracoplasty.
- J. T. H., 1938. (Included in preceding "early" group, which see, since it showed early spread of disease but was classified as a late death.)
- G. C., 1938. (Included in preceding "early" group because of early complications. Classified as a late death.)
- W. J., 1938. A man aged 31 died of progression of disease and wound infection eight months after a first stage thoracoplasty

wit!

## COMPARISON OF OUR RESULTS WITH THOSE FROM VARIOUS CLINICS

In our series of 126 cases of thoracoplasty for tuberculosis from 1935 through 1939 under ether anesthesia there have been eight early deaths (6.3 per cent), that is, within the customarily stated but purely arbitrary period of two months after operation, and eight later deaths (6.3 per cent) for a total death rate of 12.7 per cent from tuberculosis in any form and from causes directly or indirectly connected with the operation; 59.5 per cent of the 126 cases are apparently cured, 8.7 per cent arrested, 1.6 per cent apparently arrested and 14.3 per cent quiescent.

Haight and Alexander 13 reported a death rate of 5.6 per cent in 178 cases between 1934 and 1937 from causes directly or indirectly connected with operation,

TABLE 4.—Averages in Seven Groups of Cases *

Authors	Major Anesthetic Agent	Cases	Early Death Rate	Total Death Rate	Apparently Arrested, Arrested and Apparently Cured
Aufses	Nitrous oxide	90	7.0	11.0	71.0
Diffenbach and Crecca	Evipal plus nitrous oxide	100	2,0	13,0	71.0
Finney	Early, avertin with amylene hydrate and nitrous oxide; recently, eyclo- propane	104	5.7	18.2	62.5
Beecher and Adams	Ether	126	6.3	12.7	69.8 84.1†
Skinner et al.	Avertin with amy- lene hydrate and nitrous oxide; a few, cyclopropane	126	3,2	4.8	80.03
Haight and Alexander	Nitrous oxide	178	5.6	6.1	83.1
Meltzer	Local	181	1.6	4.4	63,4
Total pa	tients	905			
Average deviation	(with standard as)	129	4.5±0.9	10.0±1.9	71.5± 3.0

^{*}It is impossible to determine from some of these series whether or not patients having empyema were included. The inclusion of empyema cases interferes greatly with good average end result figures. All empyema cases that we encountered in the consecutive cases studied were included

cases that we encountered in the consecutive cases studied were included no our data.

If if we include our quiescent cases here, as some writers appear to have done, 69.5 per cent becomes 84.1 per cent. It was not possible to break down the data from the several clinics presented here as they should be according to the National Tuberculosis Association classification; namely, as apparently cured, arrested, apparently arrested and quiescent. Our figures for these respective groups are shown in table 2.

and a total death rate of 6.1 per cent. In another group of 119 cases, probably including many of the foregoing, they had 83.1 per cent apparently arrested cases from two and one-half months to two years after operation. At the time these data were compiled, nitrous oxide was chiefly favored by Alexander as the anesthetic agent (pp. 443, 444, 448).

Skinner, Macpherson and Allen,14 report 3.2 per cent early deaths and 4.8 per cent total tuberculous deaths in a series of 126 cases from 1936 to 1940. The anesthesia which they used (personal communication) was avertin with amylene hydrate plus nitrous oxide in nearly all

cases. Cyclopropane was used in a few cases.

Finney 15 had an operative mortality of 5.7 per cent and a total mortality of 18.2 per cent in a group of 104 cases between 1932 and 1940, with arrest of disease in 42.3 per cent and apparent arrest in 20.2 per cent.

Avertin with amylene hydrate and nitrous oxide-oxygen were used in the earlier cases and cyclopropane in the later ones.

Meltzer,16 using local anesthesia exclusively, reported that he obtained arrest of disease in 32 per cent and apparent arrest in 31.4 per cent of 181 patients from 1936 to 1941, with an operative mortality of 1.6 per cent and a total mortality of 4.4 per cent.

Autses 17 had an operative death rate of 7 per cent and a total death rate of 11 per cent in 90 cases between 1935 and 1940, using nitrous oxide-oxygen, avertin with amylene hydrate and cyclopropane, and the disease of 71 per cent of his cases was arrested.

Diffenbach and Crecca,18 using evipal and nitrous oxide-oxygen, reported 100 cases in which operation was performed during the period 1936 to 1938, with an early mortality of 2 per cent, a total mortality of 13 per cent and arrest of disease in 71 per cent.

The averages for these seven groups of cases are shown in table 4. Except for the figures from Haight and Alexander, the data are the most recent published, representing the authors taking part in the Symposium on Results from Thoracoplasty at the twenty-fourth annual meeting of the American Association for Thoracic Surgery, Toronto, Canada, in June 1941.

It is apparent that the results in our cases have fallen near the average in the several categories. On the basis of these comparative data, no outstanding virtue can be claimed for one anesthetic agent nor particular hazard charged against another, as far as the results in these seven series go. Certainly it is true here as elsewhere that the anesthetist is of more importance than the anesthetic agent employed. To let one's conclusions rest here, however, implies a rather restricted view of the matter. It seems to be true that any one of two or three agents can safely be employed in the presence of pulmonary tuberculosis without aggravating this disease process. One might assume therefore that, if a well trained anesthetist is available, these two or three agents are all equally desirable. We doubt the validity of such an assumption, for it implies that the absolute death rate is the same for all of these agents. While it is admittedly difficult if not impossible to get precise information on this subject, enough evidence is available to indicate that wide differences exist between the death rates of the common anesthetic agents. Since this is the case it seems wiser to choose the agent which allows two important things: (1) the lowest death rate when large masses of data are considered, in other words jeopardizes the patient the least, and (2) permits the surgeon the greatest freedom. The low death rate of ether has been established in general surgery from its use in very sick patients in many hundreds of thousands of cases. The death rates of some other common general anesthetic agents appear to be at least twice as high as that of ether. In addition to these matters, the following should be considered: When the anesthesia is to be chosen for thoracoplasty, we believe it to be of great importance to choose ether, for on the basis of a considerable experience with patients who undergo all kinds of thoracic surgery it is our observation that many of the obvious as well as less apparent difficulties encountered during these operations are caused by reflex phenomena medi-

^{13.} Alexander, John: The Collapse Therapy of Pulmonary Tuberculosis, Springfield, Ill., Charles C. Thomas, 1937, pp. 562, 564.
14. Skinner, G. F.; Macpherson, Lachlan, and Allen, Irene: Thoracollasty for Tuberculosis, J. Thoracic Surg. 11:54 (Oct.) 1941.
15. Finney, G. G.: Analysis of 104 Cases of Thoracoplasty for Pulmonary Tuberculosis, J. Thoracic Surg. 11:76 (Oct.) 1941.

^{16.} Meltzer, Herbert: Results of Thoracoplasty, J. Thoracic Surg. 11:84 (Oct.) 1941.
17. Aufses, A. H.: Results in Ninety Consecutive Toracoplastics for Pulmonary Tuberculosis, J. Thoracic Surg. 11:98 (Oct.) 1941.
18. Diffenbach, R. H., and Crecta, A. D.: Analysis of 100 Connective Cases of Thoracoplasty with No Operative Mortality, J. Thoracic Surg. 11:65 (Oct.) 1941.

ated through the vagi. The depression of vagal activity accomplished by ether is of real importance in thoracic surgery. We have reached this conclusion on the basis of data obtained in the clinic as well as in the anesthesia laboratory. In this regard ether exceeds in value all other agents studied to the present time.

Since the choice of closed ether anesthesia presents no hazard to the tuberculosis process, as far as we have been able to determine, it appears to us to be the best choice for the reasons that have been mentioned, for use in operations on patients who are suffering from tuberculosis whenever they require general anesthesia, whether this is for surgical treatment of pulmonary tuberculosis or for surgical treatment of other lesions.

### SUMMARY

A prejudice exists against the use of ether anesthesia for operations on tuberculous patients. Where this originated is uncertain, but the current basis for it can be found in numerous published statements. On examination, these statements do not appear to be founded on study and careful record keeping; casual opinion appears to have served as the basis for many of the statements voiced against ether. Three groups of workers have in the past attacked the problem experimentally. Not one was able to substantiate the prejudice against the use of ether anesthesia for operations on the tuberculous. Most of the articles which apparently serve as the basis for the current prejudice against ether were written from one to three decades ago and were based on observations of "open cone" or "open drop" ether administration. It is probable that some of the secondary results of the use of this technic are undesirable in the presence of pulmonary tuberculosis as elsewhere.

Since the prejudice against the use of ether anesthesia for operations on the tuberculous does not appear to be based on a secure foundation and since, as far as we have been able to find, no extensive clinical study of this matter has been carried out, we have for more than five years been using closed ether anesthesia (with carbon dioxide absorption) in operations on consecutive patients undergoing surgical treatment of their pulmonary tuberculosis. Our data include all cases, favorable and unfavorable. The surgical teams were constantly changing, the surgeons varying from members of the house staff to the chief of service. Notwithstanding these facts, our results for more than five years are such as to compare favorably with those from other clinics where ether is used either not at all or rarely.

In our opinion, the anesthetic agent is not important in these cases as long as it permits the use of a plentiful supply of oxygen and allows the surgeon to carry out a deliberate, unhampered and unhurried operation, provided the patient is not jeopardized by toxic action of the anesthetic. It is important to choose an anesthetic agent which depresses vagal activity when thoracic surgery is contemplated. Ether excels other agents studied in this regard. While not enough data have been collected to permit final statement, several of the newer anesthetic agents appear to have a death rate in general surgery two or three times higher than is the case with ether. The excellent tolerance of the very sick patient for ether anesthesia as well as the low death rate attributable to this agent are well established. After five years of study we can see no reason to abandon the use of ether in operations on the tuberculous patient because of the presence of tuberculosis.

# UNTOWARD EFFECTS OF PHENYTOIN SODIUM IN EPILEPSY

ISIDORE FINKELMAN, M.D.

A. J. ARIEFF, M.D.

CHICAGO

Merritt and Putnam 1 found that while phenytoin sodium (sodium diphenyl hydantoinate, or dilantin sodium) was effective in protecting animals from electrically induced convulsions it produced little sedative effect. The effectiveness of this drug was then determined by them² in a group of 200 patients who had been having frequent convulsive seizures for many years and who had obtained little or no benefit from the usually accepted treatment. Certain toxic effects were observed, among them dermatitis, nonthrombopenic

purpura, tremors, ataxia and dizziness.

Although Fetterman 3 reported that phenytoin sodium had a high degree of therapeutic value, he observed disquieting side actions such as itching, a cutaneous rash, swelling of the gums, tremors and ataxia, blurring of vision, loss of taste and dysesthesia in the mouth, restlessness, insonmia, irritability, paranoid state, anorexía. gastric distress and loss of weight. A study of the table published by Fetterman shows that 23 of 28 patients, or 82 per cent, had some toxic effects. Epistaxis was mentioned by Frost 4 as a complication. Kimball 5 reported hyperplasia of the gums. Merritt and Putnam a later mentioned diplopia with nystagmus, drowsiness, headache, psychotic reaction, hypertrophy of the gums and slight secondary anemia in a small percentage of patients. Blair, Bailey and McGregor 7 reported the side effects of giddiness, tremor, ataxia. blurring of vision, slight nausea, delusions, hallucinations, prolonged confusion, clonic spasms, agitation. mental depression and reactivation of suicidal tendencies in an unspecified number of their 75 institutionalized patients treated with phenytoin sodium. Toxic reactions in some degree occurred in the majority (73 per cent) of Pratt's 52 cases.8 In addition to the usual side actions such as subjective tremulousness and a feeling of apprehension and tension, tremors, burning sensation in the eyes, blurring of vision, diplopia, dizziness, ataxia, nausea and vomiting, 5 patients had psychotic states. Blair preported a case of hemiplegia developing as a complication of treatment with phenytoin sodium. He 10 later reported the results of treatment of 36 institutionalized patients with phenytoin sodium. Twentyone, or 58.3 per cent, developed severe nervous toxic symptoms. Of particularly ominous nature seemed

From the Department of Nervous and Mental Diseases, Northwestern University Medical School, and the Minnie Frances Kleman Memorial Fund

University Medical School, and the Minnie Frances Kleman Memorial Fund

1. Merritt, H. H., and Putham, T. J. A New Series of Anticonvul sant Drugs Tested in Experiments on Animals, Arch. Neurol. & Psychiat 39: 1003 (May) 1938.

2. Merritt, H. H., and Putham, T. J. Sodium Diphenyl Hydan tonate in the Treatment of Convulsive Disorders, J. A. M. A. 111: 1068 (Sept. 17) 1938.

3. Letterman, J. L. Dilantin Sodium Therapy in Epidepsy, J. A. M. A. 114: 396 (Feb. 3) 1940

4. Frost, L. Sodium Diphenyl Hydantoniate in Treatment of Severe Cases of Epidepsy, J. Ment. Sc. 85: 976 (Sept.) 1939.

5. Kimball, O. P. The Treatment of Epidepsy with Sodium Diphenyl Hydantoniate, J. A. M. A. 112: 1244 (April 1) 1939

6. Merritt, H. H., and Putham, T. J. Sodium Diphenyl Hydantoniate in Treatment of Convulsive Services Toxic Symptoms and Their Prevention, Arch. Neurol. & Psychiat. 42: 1053 (Dec.) 1939.

7. Blair, Donald, Budey, K. C., and McGregor, J. S. Treatment of Epidepsy with Epanutin, Lancet. 2: 363 (Aug. 12) 1939.

8. Pratt. C. H. Sodium Diphenyl Hydantoniate and Its Combination with Phenobarbulal in the Treatment of Epidepsy, J. Ment. Sc. 85: 286 (Sept.) 1939

9. Blair, Donald Hemuplegia Complicating Sodium Diphenyl Hydan tonate Therapy in Epidepsy, Lancet. 1: 269 (Feb. 10) 1940

10. Blair, Donald The Modern Treatment of Epidepsy, J. Ment. Sc. 86: 888 (Sept.) 1940

psychosomatic delusions, revival of such psychotic symptoms as severe depressions and the like. Loss of weight was frequent, occurring in 15 out of 20 patients. Eosinophilia (between 4 and 12 per cent) occurred in a few cases and in 2 cases a reduction in red blood cells occurred. Pratt ⁸ found a mild albuminuria in some cases. McCartan and Carson ¹¹ reported that toxic symptoms developed in 40 per cent of their 20 cases. In some of their cases a decided twitching of the orbicularis oris preceded by two to three weeks the development of ataxia. In every case there was a slight, progressive diminution of the red cell count. There was a tendency to a lowering of the white cell count due to a fall of granulocytes. In 13 cases (65 per cent) there was a rise in the number of eosinophil cells.

Williamson 12 reported severe toxic effects of phenytoin sodium in mentally defective patients with epilepsy. He said that these toxic reactions were clinically identifiable with a state closely resembling nirvanol Of the toxic reactions, Williamson noted widespread furunculosis in 1 case, edema of the face in 2 cases, an urticarial wheal along the mucocutaneous margin of the lips in 1 case and gingival hyperplasia with bleeding in 1. There was 1 case in which there was a persistently low blood urea and 2 cases in which there was hematoporphyrinuria. There were 4 deaths among the 20 patients treated, or a mortality of 20 per cent. In the cases terminating fatally oliguria was the An intermittent temperature of 100 to 102 F. appeared late. In 1 case it rose to 106 F. forty-eight hours before death, while in other cases the terminal temperature was subnormal. Death was due to bronchopneumonia in 1 case and to status epilepticus in 3. Status epilepticus set in in the 3 cases after phenytoin sodium therapy had been administered for one-half month, one-half month and two and one-half months respectively. In 1 case the treatment was discontinued after three months because a tendency to status epilepticus began.

Williams 13 reported that 2 patients died in status epilepticus while on phenytoin sodium and bromides. Phenytoin sodium had at first obviously had a good therapeutic effect, yet status epilepticus later developed while the patients were under full treatment with the drug. Status developed in 1 case after a remission of five weeks while on treatment and in the other after a remission of two months while on treatment. He also found that toxic symptoms arose in 36 per cent of his 83 patients. The toxic complications involving the nervous system included bifrontal headaches, lethargy, bilateral ptosis, blurring of vision, diplopia, ataxia, tremor and nystagmus in all directions. Behavior disturbances also occurred which might be attributed to

the toxic effects of phenytoin sodium.

Blair 10 reported 4 deaths but could not definitely prove the association of death to the use of phenytoin sodium. In 1 case phenytoin sodium was withdrawn long before death. One death was due to cardiac involvement in a patient with known cardiovascular disease. In the other 2 cases, however, postmortem examination showed myocardiac damage, and we believe that phenytoin sodium had a toxic influence on the myocardium leading to a fatal termination.

Blair 10 also noted in 4 cases a noticeable exacerbation of spells following a long period free from spells

11. McCartan, W., and Carson, J.: The Uses of Sodium Diphenyl Hydantoinate, J. Ment. Sc. S5: 965 (Sept.) 1939.
12. Williamson, B. A. M.: Severe Toxic Effects of Sodium Diphenyl Hydantoinate in Mentally Defective Epileptics, J. Ment. Sc. 86: 981 (Sept.) 1940.
13. Williams, Denis: Treatment of Epilepsy with Sodium Diphenyl Hydantoinate, Lancet 2: 678 (Sept. 23) 1939.

14. Coope, Robert, and Burrows, R. G. R.: Treatment of Epilety with Sodium Diphenyl Hydantoinate, Lancet 1:490 (March 16) 1940
15. Kimball, O. P., and Horan, T. N.: The Use of Dilartin in the Treatment of Epilepsy, Ann. Int. Med. 13:787 (Nov.) 1939.
16. Mandelbaum, Harry, and Kane, L. J.: Dilantin Poiconics, Arci. Neurol. & Psychiat. 45:769 (May) 1941.
17. Aring, C. D., and Rosenbaum, Milton: Ingestion of Large Doce of Dilantin Sodium, Arch. Neurol. & Psychiat. 45:265 (Teb.) 1941.

due to phenytoin sodium therapy. An increase of phenytoin sodium dosage led to an increase of seizures. Reduction of the dose led to a reduction of the seizures.

Coope and Burrows 14 had 2 fatalities due to bronchopneumonia following an acute exacerbation of seizures: a woman aged 31 had a series of six severe major attacks after three weeks on phenytoin sodium therapy and three seizures the next day. Phenytoin sodium was discontinued and she was given bromides, a chloral derivative and phenobarbital, but she had fifteen attacks the following day. Three days later she died of bron-chopneumonia. The other patient who died was a youth aged 18 who after two weeks on phenytoin sodium therapy had two seizures. After two more weeks he had two, four and nineteen spells on successive days, his temperature rose to 105 F. and he died of a disseminated bronchopneumonia.

Kimball and Horan 15 reported repeated attacks of gastrointestinal irritability together with unusual hyperplasia of the gums. Mandelbaum and Kane 16 reported a case in which there was pyrexia, dermatitis exfoliativa and considerable enlargement of the liver and spleen. The serum phosphatase value was found to be increased to 15.4 mg. per hundred cubic centimeters. Phenytoin sodium was given in 1½ grain (0.1 Gm.) capsules two or three times a day. The rash was first noted after thirty-nine capsules had been taken and the more severe toxic effects occurred after seventy-nine

capsules had been ingested.

Aring and Rosenbaum 17 reported that a young man on three occasions ingested 60, 901/2 and 105 grains (4, 6 and 7 Gm.) of phenytoin sodium over a period of minutes, six hours and ten hours respectively. The chief resulting symptoms were exhilaration, light headedness, dizziness, nausea and vomiting, headache, staggering, diplopia, nystagmus, difficulty in converging the eyes, pupillary abnormalities, ataxia, tremor and changes in reflexes. Of all these signs, nystagnus persisted the longest and was present for eight days on the last occasion.

### OUR OBSERVATIONS

Forty-four patients with epilepsy who had previously been treated with bromides or phenobarbital for at least six months were each given from 0.3 to 0.6 Gm. of phenytoin sodium daily. Four of these patients were from the private practice of Dr. L. J. Pollock. The remaintler were from the Epilepsy Clinic of Northwestern University Medical School. Phenytoin sodium was administered according to the method advised by Merritt and Putnam. The previous medication was gradually withdrawn as phenytoin sodium was overlapped and finally substituted. Treatment was begun on 20 patients in April 1939. As patients were found suitable for this treatment they were added shortly after that date until a total of 44 was reached. However, at the present time only 7 patients remain on active treatment with phenytoin sodium.

The reasons for discontinuing the medication after varying lengths of time from two weeks to several months were as follows: It was discontinued in 3 cases because of an increased frequency of spells, in 6 because of a severe ataxia, in 1 because of a severe gastrointestinal disorder, in 7 because there was no reduction in the number of seizures, in 4 because psychotic

behavior developed, in 4 because of the development of an encephalopathy, in 3 because there were electrocardiographic changes and subjective complaints of precordial distress, in 5 because of irritability and apprehensiveness and the refusal of treatment and in 1 because of the development of peripheral neuritis.

### TOXIC EFFECTS

The most alarming side effects were those involving the nervous system. The gastrointestinal tract, the cardiovascular system, the skin and formed elements of the blood also exhibited evidence of deleterious effects of phenytoin sodium. Each patient presented more than one symptom of a disquieting side effect involving various organs.

Ataxia, tremor and nystagmus were the most frequent symptoms reflecting toxic action on the nervous system. The ataxia was of the cerebellar type and the Babinski-Weil sign was frequently elicited. Many of the patients were irritable and apprehensive and said they were "jittery." The most serious complication was the development of an encephalopathy or a psychosis necessitating institutionalization. An encephalopathy occurred in 4 cases. A loss of weight in our experience was an indication of the development of toxic symptoms leading to an encephalopathy. One patient aged 15 who had a remission for six months while on phenytoin sodium therapy began losing weight gradually for a period of four months, although she said that she was eating too much. Her attention was wavering for several weeks and then she became somnolent. She had no subjective complaints but she walked slowly and stared as though in a trance. Then she complained of dizziness and mild nausea. She became very sleepy, mumbled to herself and was very unsteady in gait. Nystagmus was present laterally and vertically. positive Babinski-Weil reaction was elicited. was considerable swaying during the Romberg test. There was a facial weakness on the right side, hyperactive deep reflexes, absent superficial abdominal reflexes and no pathologic reflexes. She answered to questions only with yes or no very slowly. She became semistuporous.

This type of encephalopathy had developed in 4 cases. The psychotic behavior that occurred in 6 cases was characterized by a confusional paranoid state with significant irritability.

There were 2 children who had tantrums of temper consisting of stamping on the floor, walking around in circles and throwing themselves on the floor while on treatment. This behavior had not occurred on previous medication and their behavior may have been due to the toxic effects of phenytoin sodium. Other side effects involving the nervous system were vertigo and dizziness, paresthesias, peripheral neuritis (1 patient), headache, visual disturbances including blurring of vision and diplopia, insomnia, somnolence and general weakness.

Two of the patients developed status epilepticus, 1 after four weeks on phenytoin sodium 0.4 Gm. daily and the other after a week of treatment with 0.3 Gm. daily and phenobarbital 2½ grains (0.15 Gm.) daily. Five patients had an increase in the frequency of spells. Others have reported, as already mentioned, status epilepticus as a complication of phenytoin sodium. It is possible that one of the toxic effects of phenytoin sodium is an increase in the frequency of seizures and status epilepticus.

The heart was studied also by electrocardiography because some of the patients complained of precordial distress. Twenty-seven patients were studied by serial electrocardiograms. All but 2 showed definite changes on a maximal dose of phenytoin sodium for each patient. Thirteen, or approximately 50 per cent, showed prolongation of the PR interval of from two hundredths to four hundredths second. Twenty-one, or 78 per cent, showed a decrease in the amplitude of the T wave. In 3 cases there were P wave changes and in 1 case there was a significant alteration of the QRS complex. In all cases, after the drug was discontinued, the electrocardiographic pattern returned toward the normal for each patient. For example, in 1 patient an electrocardiogram taken six weeks after the beginning of treatment showed evidence of a heart block. This patient complained of precordial oppression. Successive electrocardiograms showed an increase in the PR interval and he continued to complain of precordial distress.

Toxic Effects of Phenytoin Sodium Analyzed According to the Various Organs Involved

Nervous system	Number of Patients
Psychosis	6 17
A COLOR	18
	4
	21
	5
	ĭ
•	2
	10
	5
Sompoience	1
Weakness	6
Tremor	15
Status epileptieus	2 4
Encephalopatny	4 2
	z
Cardiovascular system	
Electrocardiographic changes	32
Subjective complaints (precordial distress)	5
Edema of legs	1
Gastrointestinal system .	
Nausen and vomiting	13
• • • • • •	3
	2
	11
	17
Skin	
Scarlatiniform rash with feyer	1 .
Rash and pruritus	Ĝ
Urine	
Albuminuria	6
	U
Blood	
Secondary anemia	3
	Đ
	4 10
	10

Phenytoin sodium was discontinued and the electrocardiograph was normal after a few months. Seven more patients not studied serially showed on the electrocardiograph a prolongation of the PR interval. One patient had edema of the legs.

The report by Williamson 12 of cardiac involvement as a result of treatment with phenytoin sodium is relevant in connection with the electrocardiographic changes that we have found. Three of his patients who had no history of cardiac or renal disease did have changes in the cardiac rate during the time that other toxic signs were present. One patient aged 20 had a simple bradycardia of 52 beats a minute three months after beginning treatment. Another, aged 58, had a bradycardia of 44 beats a minute with very frequent ventricular extrasystoles five weeks after starting treatment with phenytoin sodium. The patient complained of weakness, breathlessness and swelling of the ankles and showed cardiac dilatation, inversion of the T wave and clinical signs of cardiac insufficiency. The third patient had paroxysmal tachycardia which may merely have been coincidental and not due to treatment.

The other side effects due to phenytoin sodium as given in the table have at one time or another been reported by others, as mentioned in the survey of the literature. Although nausea and vomiting was quite frequent and may have been due to gastric irritability caused by the drug, the toxic effects as observed in 1 case simulating an acute abdominal condition is a more serious complication. The patient was a girl aged 19 who was given phenytoin sodium overlapping and substituting phenobarbital. When the dose of phenytoin sodium reached 0.6 Gm. a day a generalized weakness, severe abdominal pain, nausea and vomiting developed. There was no fever and the leukocyte count was normal. Phenytoin sodium was discontinued for a week and the symptoms disappeared. When treatment with phenytoin sodium was resumed the patient experienced the same symptoms within a week. She again recovered when phenytoin sodium was discontinued. When treatment with phenytoin sodium was begun a third time and she again had severe gastrointestinal symptoms she refused to take any more of the drug.

The loss of weight mentioned by others was also observed in some of our cases. The weight loss ranged from 1 to 22 pounds (450 Gm. to 9.1 Kg.). Fourteen patients lost weight, 11 gained and the others maintained the weight they had before treatment. Seventeen patients had a gingival hyperplasia, a condition first reported by Kimball.⁵

The only significant change noted in blood chemistry studies was an increase in the serum phosphatase. The phosphatase value after various periods of treatment ranged from 7.92 to 18.59 mg, per hundred cubic centimeters. The average value was 10.77. This is of interest in relation to hepatic involvement, since Mandelbaum and Kane ¹⁶ reported a case in which there was enlargement of the liver and spleen with an increase in serum phosphatase.

Seven patients are still on treatment with phenytoin sodium. These patients were continued on treatment because phenytoin sodium definitely exerted favorable influences on their seizures. These patients also had side effects from phenytoin sodium but not sufficiently serious to indicate cessation of phenytoin sodium since the side effects were offset by the remissions caused by phenytoin sodium. These patients had the complications mentioned in the table, but at the present time, more than two years after treatment, they are for the most part free of them.

Of the 7 patients still on treatment with phenytoin sodium, 6 have had remissions from seizures of from ten to seventeen months and 1 is free from seizures for periods of about two months. Previously these patients had not responded favorably to bromides, to phenobarbital or to both.

SUMMARY

Forty-one patients with epilepsy were treated with phenytoin sodium according to the method of Merritt and Putnam. All the patients showed some side effect of the drug, ranging from apprehensiveness and irritability, present in 21 patients, to the development of an encephalopathy, in 4 patients. Side effects involved chiefly the nervous system and ataxia, vertigo, blurring of vision, nystagmus, tremors, insomnia and somnolence occurred. Status epilepticus, a paranoid confusional psychosis and encephalopathy were observed.

Of particular interest in relation to the cardiovascular system was electrocardiographic evidence of involvement of the heart. There were also toxic effects on the gastrointestinal system and the skin.

303 East Chicago Avenue.

# Clinical Notes, Suggestions and New Instruments

FAMILIAL HEREDITARY EDEMA
MILROY'S DISEASE

ROBERT L. STERN, M.D., CAMP CALLAN, CALIF.
1st Lieut., M. C., U. S. Army

The occurrence of familial hereditary edema, also known as Milroy's disease, hereditary trophedema and hereditary or congenital elephantiasis, is rare, particularly when a continued familial incidence can be demonstrated. Search of the literature reveals that fewer than fifty families with this hereditary syndrome have been reported. The following case is presented because such reports are rare and because of the studies, manifestations and improvement on treatment.

### REPORT OF CASE

A. W. S., a white man, aged 25, unmarried, a selectee in the United States Army, was admitted to the Station Hospital, Camp Callan, California, Aug. 4, 1941 because of pain, swelling and mottled redness of the right foot. In civilian life he had been a painter. His home was in the Middle West. Since his induction in the army seven weeks prior to entering the hospital, he had been engaged in the usual training and drilling on the camp grounds. He stated that there had been some degree of pitting and swelling of the right foot as long as he could remember. His mother had told him that this had started when he was about a year old, or about the time he might have been expected to start walking. The condition has always been confined to the right foot. It has given him varying degrees of distress from none at all to the condition present on hospitalization. Symptoms have always been more severe during the summer months. Activity has little effect except that when he is on his feet a great deal the swelling is a little more noticeable. This clears somewhat when he is at rest with the foot elevated, but he is never without some slight degree of swelling. The foot has never been frostbitten or injured, nor has the skin ever blistered. He has never had an infection of the leg or abdomen. The patient has been a heavy smoker all his adult life, but there is no correlation between the amount of his smoking and the swelling of the

The patient has had numerous and varied treatments in civilian life without relief of the condition. When the swelling is at its maximum or when acute episodes of redness and pain occur he experiences a sensation of shooting pain going up and down the hone between the ankle and the knee.

The patient was cooperative and intelligent. He stated that he had never had any serious illness and that he had had no venereal disease of any type. His only operation was a hernioplasty on the left side in 1930. His height was 651/2 inches (168 cm.) and his weight 138 pounds (62.6 Kg.); his temperature peak was 100.6 F., pulse peak 100 on the day of entry and blood pressure 130 systolic and 85 diastolic. Physical examination was essentially negative except for premature baldness of the crown of the head, a well healed, freely movable inguinal scar on the left side and hot, red swelling of the right foot over the dorsum and sides from the ankle to but not including the toes, although the toes were slightly swollen. There were small petechial hemorrhages on the lateral aspect of the foot but nowhere else. The foot was moderately tender to deep pressure, and active motion was fair. There was no lymphangitis and no adenopathy.

Roentgen examination of the foot was reported by Lieutenant Sachs, roentgenologist, as follows: "The bones of the right ankle joint are within normal limits. Soft tissue studies of the ankle reveal a soft tissue swelling. There is no evidence of calcification of the soft tissue" (fig. 2).

Urinalysis was essentially negative; the blood Kahn reaction was negative. A blood count revealed the hemoglobin level

From the Coast Artillery Replacement Center, Station Hospital.

80 per cent, erythroctyes 3,850,000, leukocytes 9,050 with 76 per cent polymorphonuclear neutrophils. The blood sedimentation rate was 46 mm. (normal 5 to 10 mm.) and the blood uric acid content 3.5 mg. per hundred cubic centimeters.

Treatment consisting of administration of sulfathiazole and elevation of the foot was instituted and continued for one week. On the fourth day the temperature, which had remained at 99 to 100 F., returned to normal and continued at that level thereafter. At that time the redness of the foot had cleared and the pain had greatly diminished. On the fifth day of hospitalization the blood sedimentation rate was 30 mm., with the blood count approximately as before. The swelling of the foot persisted unchanged, however, and he was transferred to a medical ward. At the end of his second week in the hospital the cellulitis and the cutaneous irritation were completely cleared, but the swelling of the foot and ankle remained about the same. Examination of scrapings of the skin of the foot and between the toes failed to reveal any evidence of mycotic infection. Repeated urinalyses remained essentially negative. Blood counts were normal except for the persistent, moderately low erythrocyte and hemoglobin determinations. He continued to have occasional aching pain in the leg, but this was intermittent and slight, and he was ambulatory. Bed rest with elevation made little impression on the swelling, which was now firm but not brawny, pitted on pressure, was not tender and extended to a point about half way to the knee. The skin was now smooth, warm, of normal color and somewhat thickened. Both dorsalis pedis arteries pulsated normally.

On August 23, the twentieth hospital day, because of the persistent swelling and the important revelation of the foot swelling since infancy, familial hereditary edema was suspected and the patient questioned closely about hereditary factors. In regard to these, he was positive about the following: His maternal grandfather had the same type of swelling, confined to the left foot, with onset known to have occurred at the age of 16 years; his maternal great grandfather was said to have had the same condition, and the patient's mother has had unexplained swelling of both her legs since the age of 28. His grandfather had thirteen siblings, none of whom had a similar condition; his mother had three sisters, all of whom died in infancy, and two brothers who have no evidence of a similar condition. The patient had one brother and one sister who did not have a similar condition. The manifestations and history were deemed sufficient to establish a diagnosis of familial hereditary edema especially after further studies to exclude other conditions were made.

The sedimentation rate was now a normal 11 mm., the stool was found clear of pathogenic parasites and the total serum



Fig. 1.—Patient's legs just previous to mercupurin therapy, showing the swelling of the right foot.

protein was 6.9 mg. per hundred cubic centimeters. Roentgenograms of the chest, the pelvis and hip joints revealed a normal appearance. The blood pressure in the legs with the systolic determined by palpation of the first pulsation in the dorsalis pedis arteries was 168 in the left leg and 138 in the right leg. The venous pressure in the right leg was 10.5 cm.,

and at the same midcalf level in the left it was 9 cm. The circulation time from the midcalf of the left leg to the tongue, with the use of decholin, was ten seconds and of the right leg twenty seconds. The left leg-tongue time was determined first and, although a time lapse was allowed with the patient

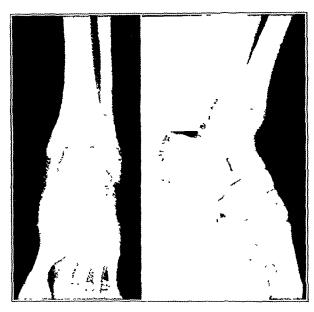


Fig. 2.—Front and side view of the patient's right ankle and foot.

continuing at absolute rest, the difference in the circulation times was probably partially due to a dulled taste perception for the agent used.

On September 16, thirty-nine days after the redness and evidence of cellulitis had cleared, the comparative circumferences of the legs were, at the malleoli: right leg 12¼ inches (31.5 cm.), left 10 inches (25 cm.) at a level 3 inches (7.6 cm.) about the malleoli: right 9½ inches (24.5 cm.), left 8½ inches (22 cm.), the left leg having been, of course, of normal appearance throughout the period of observation. Above these levels the two legs were of the same circumference (fig. 1).

On September 17, the forty-fourth hospital day, because the swelling remained the same despite long periods of bed rest and because the patient still had intermittent aching of the leg, 2 cc. of mercupurin was administered intravenously. During twenty-four hours the patient had a fairly good dimesis, which it was impossible to measure accurately because the patient had to be out of the hospital part of the day, and his weight dropped from 136 to 133 pounds (61.7 to 60. 3 Kg.). The right ankle and foot were definitely less swollen, the measurements now having decreased to 11 inches (28 cm.) in circumference at the malleoli and 834 inches (23 cm.) at a level 3 inches above the malleoli. With the reduction of the swelling of the foot, the intermittent distress in the foot cleared entirely.

Within the week he was discharged from the hospital in continued excellent general condition and was discharged from the army to his home by a Certificate of Disability Discharge. He was advised either to have mercupurin therapy whenever the leg caused distress or to try other suggested long term therapy under the supervision of a private physician. He reported by mail on October 13 that he continues to be in good general health and has no distress whatever in the leg, although some swelling persists.

### SUMMARY AND CONCLUSIONS

- 1. A case of familial hereditary edema with a maternal family incidence in four generations has been reported because of the rarity of the condition described and because of the studies and observations made.
- The case is further unusual because it is generally regarded that this type, the congenital as differentiated from the acquired.

which occurs later in life, does not present the acute pain and inflammatory episodes which this patient suffers.

3. The use of mercupurin to relieve the swelling gave complete relief from intermittent aching pain, which thereby is apparently demonstrated to be due to the swelling and not intrinsic with the syndrome.

#### PSITTACOSIS

### HENRY ALICANDRI, M.D., BROOKLYN

Psittacosis, a highly communicable disease, has been transmitted to man by parrots, parakeets, love birds and rarer birds of the parrot family.

This communication is of interest because it presents an isolated case of psittacosis in which the only exposure to a bird was to the common pigeon; this possible source of infection warrants closer investigation.

### REPORT OF CASE

L. M., a white man aged 35, born in the United States, a policeman, collapsed suddenly while on duty on Oct. 8, 1941. I saw him a few hours later, at which time he complained of fatigue, pain in the left lower portion of the chest extending from the axilla to the precordium, slight cough and blood tinged sputum. He also stated that he had had chills and fever and a "grippy" feeling for two or three days.

The past history showed no previous illness or operation. He was given sulfathiazole, and for the next six days the temperature varied from 100 to 103 F. The pulse rate was 70 to 80 and the heart sounds were distant and of poor quality.

On October 15 the pain in the chest became severe and the temperature rose to 104.5 F. The patient was flushed and the membranes were cyanotic; he was admitted to the Bay Ridge Hospital.

A roentgenogram made on admission revealed that the lung roots were clouded by central pneumonitis, and there was an exudative spread of this process into the lower lobe of the right lung. The heart appeared grossly enlarged to the left. The impression was that of influenzal pneumonia and mitral valvular disease. The heart sounds were weak at the apex, and the P wave in lead 2 was accentuated.

Examination of the blood on October 16 showed hemoglobin 96 per cent, erythrocytes 4,850,000, leukocytes 16,400, polymorphonuclear leukocytes 76 per cent, small lymphocytes 20 per cent, large mononuclear cells 3 per cent and eosinophils 1 per cent. On October 18 the blood showed hemoglobin 97 per cent, erythrocytes 4,950,000, leukocytes 17,650, polymorphonuclear leukocytes 70 per cent, small lymphocytes 22 per cent, large mononuclear cells 5 per cent and basophils 1 per cent. On October 20 the blood showed hemoglobin 84 per cent, erythrocytes 4,350,000, leukocytes 26,900, polymorphonuclear leukocytes 91 per cent, small lymphocytes 8 per cent and large mononuclear cells 1 per cent. The blood count on October 24 was hemoglobin 80 per cent, erythrocytes 4,480,000, leukocytes 9,800, polymorphonuclear leukocytes 78 per cent, small lymphocytes 11 per cent and large mononuclear cells 8 per cent. On October 27 the leukocytes numbered 12,500, polymorphonuclear leukocytes 6 per cent, small lymphocytes 24 per cent, large mononuclear cells 6 per cent and eosinophils 3 per cent.

Blood cultures showed no growth. Analysis of the urine revealed occasional casts and white blood cells but no albumin or sugar. The diazo test gave negative results. Pneumococci (of types I to XXXIII) were not found in the sputum. Mouse injection did not yield pneumococci or tubercle bacilli. Wassermann reaction was negative. Agglutination tests for typhoid, paratyphoid and A and B brucellosis and typhus all gave negative results.

The temperature was spiky the first week, ranging from 100.5 to 104.5 F., and the pulse rate was comparatively slow, 80 to 120. The second week the curve was typhoidal, and the last two weeks the temperature curve was flat, at 99.5 F. Respirations were for the most part normal.

Another roentgen examination, on November 7, showed left ventricular hypertrophy. There was unresolved, diffuse, patchy pneumonitis,

Treatment was given with drugs of the sulfonamide series, circulatory supportive drugs and the use of an oxygen tent for three weeks.

In view of the clinical aspect of the patient, the roentgen data and the failure of response to treatment with sulfonamide derivatives, a tentative diagnosis of psittacosis was considered for investigation. A specimen of the patient's serum was sent to Dr. Karl Meyer of the George Williams Hooper Foundation in San Francisco, who reported on October 30 a strongly positive reaction (4 plus) for psittacosis (the antigen fixed in a dilution of 1:256).

Except for the occurrence of phlebitis of the right leg, recovery after the third week was uneventful, and the patient was discharged from the hospital on November 15. Subsequent roentgen and electrocardiographic examination was reported as giving normal results.

The only contact with birds known was with pigeons, some of which the New York City Department of Health obtained and forwarded to Dr. Karl Meyer in San Francisco.

1001 Sixty-Fourth Street.

## SPONTANEOUS ELIMINATION OF A LIPOMA FROM THE SIGMOID FLEXURE

SYLVAN D. MANHEIM, M.D., AND HENRY PESKIN, M.D., NEW YORK

Benign tumors of the gastrointestinal tract are not frequent, and lipomas constitute but a small portion of those which do occur. Staemmler,1 in a series of 17,000 consecutive postmortem examinations, found only 9 lipomas, an incidence of 0.05 per cent. In a series of 3,924 consecutive autopsies at the Mayo Clinic, Comfort 2 found 20 intestinal lipomas, an incidence of 0.5 per cent. The discrepancy in these two series may have been due to the difference in size of the series or to the degree of care in searching for lipomas.

From time to time there have been reports in the literature of spontaneous elimination of gastrointestinal lipomas. In the sixty-five years from 1870 to 1935, 15 cases have been reported, 1 reported by Ninaus 3 might not be properly included because an invagination of the intestine occurred and the tumor was expelled, together with the involved portion of intestine. In 1939 Odstroil a reported 3 more instances of spontaneously expelled lipomas, all of which occurred within a period of three years. In 1940 Backenstoe reported a case of submucous lipoma of the cecum spontaneously eliminated. To these 18 cases we wish to add the report of a case which was seen in the rectal clinic of the Mount Sinai Hospital. Before presenting this, however, several aspects of this phenomenon are worthy of note. Various theories have been offered in explanation of the mechanism of expulsion. One theory offered is that invagination of the affected area of the intestine results in necrosis with sequestration of the intussuscepted portion. Another is that the mucous membrane overlying the lipoma is torn at its base and the tumor slips through the mucosal defect. In our case, only a small portion of one end of the tumor was covered with mucous membrane, suggesting a possible thinning out and tearing of this membrane due either to direct trauma or to loss of blood supply as a result of pressure necrosis.

The symptoms have been varied. In some instances bleeding, usually intermittent, has been the chief or only symptom. In

From the Rectal Clinic and Surgical Service of Dr. John II. Gardock.

1. Cited by Odstrcil.

2. Comfort, M. W.: Submucous Lipoma of the Gastrointestinal Tract
with a Report of Twenty-Eight Cases, Surg., Gynec. & Ohst. 52:103-119

(Jan.) 1931.

3. Ninaus, cited by Stetten, D.: The Submucous Lipoma of the
Gastrointestinal Tract, Two Successfully Operated Cases and Analysis
of the Literature, Surg., Gynec. & Ohst. 9:156-176 (Aug.) 1909.

4. Odstrcil. B.: Ueber spontane Elimination von Datmlipomer.

4. Odstrcil. B.: Ueber spontane Elimination von Datmlipomer.

5. Backenstoe, G. S.: Spontaneous Expulsion of Submucous Lipoma
of Cecum, Pennsylvania M. J. 44:21 (Oct.) 1949.

others pain has been the patient's chief complaint. In several of the cases reported intestinal obstruction or intussusception caused the patient to seek medical assistance. In our case, mucopurulent discharge and intermittent diarrhea led to the tentative diagnosis of colitis by her family physician. There are also cases in which a roentgen examination suggested the presence of a neoplasm for which a laparotomy was performed

### REPORT OF CASE

A white woman aged 47 was referred to the Rectal Clinic of the Mount Sinai Hospital by her family physician. She gave a history of intermittent diarrhea accompanied by blood and a mucopurulent discharge of many years' duration. In addition, she stated that she had been totally unable to have a bowel movement for the week prior to her initial visit. On rectal examination, after cleansing enemas had been given, the anus and rectum were found to be essentially normal. The sigmoidoscope was passed full length (25 cm) and blood was seen to be coming down from above this point. A roentgen examination of the colon with a barium enema was done, which was reported to show a filling defect of the midsigmoid region about 6 cm in length, suggesting a polypoid type of neoplasm with intussusception in this area The remainder of the colon was normal (fig. 1).

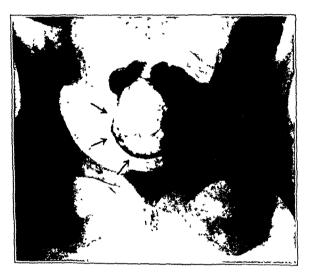


Fig. 1.-Filling defect of midsigmoid

On the basis of these observations the patient was advised to enter the hospital for operation. She refused and instead returned to the clinic two weeks later to report that she had had severe abdominal cramps forty-eight hours previously. Accompanying these cramps she experienced an urge to defecate and, when her bowels moved, passed a large amount of blood and a tumor, which she retrieved and brought with her (fig. 2).

The pathologic report on the tumor was that it was a hipoma partially covered by necrotic sigmoidal mucosa showing acute inflammation. The specimen was an oval mass received in fixative and measured 6 by 4 by 4 cm. Three quarters of the mass was fairly soft; the remainder of the surface had a dirty greenish brown color and was somewhat more firm and granular.

Roentgen examination taken three weeks after the spontaneous elimination of the tumor revealed "a filling defect in the midsigmoid region about 3 cm in length" (fig. 3). Although the appearance was much less pronounced than at the previous examination, there was still evidence to suggest a small polypoid mass with intussusception. Another examination four weeks later presented the same picture. The patient has been seen at intervals over a period of five months; during this time she has been entirely symptom free.

The persistent roentgen signs suggest the possibility of another submucous lipoma being present, and because of that the patient will be kept under observation.

In reviewing the cases reported in the literature, we find that they were almost equally divided as to sex. The youngest patient was 16 years of age, the oldest was 87. The majority seemed to have been in the fifth or sixth decade. The exact location of these tumors was not always accurately determined, but the majority seemed to have originated in the colon. Some

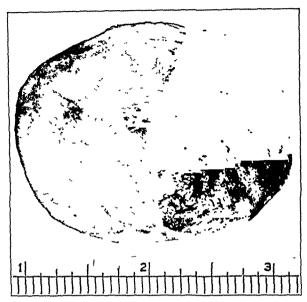


Fig 2-Lipoma partially covered by necrotic sigmoid mucosa

of these tumors were merely 2 cm. in diameter, while that reported by Afezou was supposed to have been the size of a child's head. It should be noted here that the lipoma in the latter instance originated in the rectal ampulla, which may account for the large size that it attained without producing serious obstructive symptoms. Some of these lipomas were polypoid, others were sessile and in 2 instances the patient suffered from multiple lipomas, which were expelled over a period of weeks.



Fig. 3-Appearance of sigmoid three weeks after elimination of lipoma

### SUMMARY

A lipoma of the mid-igmoid was spontaneously expelled with complete relief of symptoms. Lipomas constitute only a small percentage of the benigh tumors of the intestinal tract, which in themselves are infrequent. Surgical intervention resulting from early diagnosis may account for the fact that only 20 instances of spontaneous expulsion of lipomas have been reported in the last seventy years

336 Central Park West-41 West Ninety-Sixth Street.

# Council on Pharmacy and Chemistry

# REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. AUSTIN E. SMITH, M D., Acting Secretary.

### PROGESTERONE

The Committee on Revision of the U.S. P. XII has signified the intention of including progesterone, the corpus luteum hormone, in U. S. P. XII. The Council on Pharmacy and Chemistry has already published its preliminary report (J. A. M. A. 116:1523 [April 5] 1941) on progesterone, in which it was stated that the inclusion of this substance in N. N. R. was not warranted because of the lack of adequate evidence that progesterone therapy was conclusively established in any of the clinical indications for which it has been recommended. In its report the Council stated that further consideration of progesterone for acceptance would be deferred until additional scientific evidence becomes available, establishing definitely its usefulness.

In view of the discrepancy between the Council's view and that of the Committee on Revision of the U.S. P, the therapeutic indications for progesterone were again reviewed in the light of the latest available evidence The Council, however, was unable to alter its opinion as to the status of progesterone therapy, although the potentialities of this substance were recognized. The Council, therefore, reaffirms its previous published opinion regarding the status of progesterone.

#### AND NONOFFICIAL REMEDIES NEW

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M D , Acting Secretary.

CALCIUM GLUCONATE (See New and Nonofficial Remedies, 1941, p. 176).

The following dosage forms have been accepted.

Wafers Calcium Gliconate (Flavored)-Upjohn, 096 Gm (15 grains) Each wafer contains calcium gliconate, U. S. P., 15 grains with sugar, tale, die and oil of wintergreen for flavoring.

tale, dye and oil of wintergreen for flavoring.

Prepared by The Upjohn Company, Kalamazoo, Mich
Ampoules Calcium Gluconate Solution 10% W/V Stabilized with
Calcium d-Saccharate 1% W/V-Upjohn, 10 cc: Each ampul contains a
sterile distilled water solution of calcium gluconate, U. S. P., 1.0 Gm,
stabilized with calcium d-saccharate 0.1 Gm
Prepared by The Upjohn Company, Kalamazoo, Mich.
Calcium d Saccharate: The calcium d saccharate used as a stabilizing
agent in these solutions of calcium gluconate so stabilized complies with
the following tests and standards
Calcium d-saccharate occurs is a fine, white, odorless tasteless powder.

ne following tests and standards

Calcium d saccharate occurs is a fine, white, odorless tasteless powder, which is stable in air. It is slightly soluble in water, ether, alcohol and chloroform. A saturated solution of calcium d saccharate is neutral to lithius and possesses a pin of about 60

Transfer about 0.1 Gm of calcium d saccharate to a test tube, add 10 cc of water and 1 cc of diluted hydrochloric acid the resultant solution is clear and colorless. To this solution add 5 cc of ammonium oxialate solution, a white precipitate appears, which is soluble in diluted by devolutions and hydrochloric acid.

n) grocenoric acid.

Dissolve 0.5 Gm of calcium d saccharate in 10 cc. of water and 2 cc of diluted hydrochloric acid, and boil the solution for two minutes Cool, add 5 cc. of sodium carbonate solution, allow to stand for five minutes, dilute to 20 cc with distilled water and filter. Add 5 cc of the filtrate to 2 cc of alkaline curric tartrate solution and boil for one minute: no red precipitate is formed (dextrose and sucrose).

the filtrate to 2 cc or alkaline cupric tartrate solution and holl for one minute: no red precipitate is formed (destrose and sucrose).

One Gm of calcium d-saccharate shows no more chloride when tested with diluted nitric acid and silver nitrate solution thin 1 cc of fiftieth normal in drochloric acid. A 2 Gm portion of calcium d-saccharate shows no more sulfate than corresponds to 1 cc of fiftieth normal silfuric acid when tested with diluted hydrochloric acid and barium chloride solution. Dissolve 1 Gm of calcium d-saccharate in 10 cc of distilled water and 3 cc. of diluted hydrochloric acid; add 10 cc. of hydrogen sulfide solution: no precipitate appears, and the color is not darker than a faint brown (hear) metals).

Transfer approximately 0 4 Gm, of calcium d-saccharate, dried over sulfuric acid and accurately weighed, to a 250 cc, beaker, and dissolve in 100 cc. of distilled water and 2 cc. of hydrochloric acid. Add an excess of ammonium oxalate solution, heat to holling, and slowly neutralize with ammonia water, with stirring Digest the mixture on a water bath for one hour, filter on hardened filter paper and wash thoroughly with warm distilled water. Puncture the filter paper, wash the precipitate into a beaker by means of a stream of hot distilled water, followed by 30 cc. of diluted (1:3) sulfuric acid. Heat the solution to 60 C. and titrate with tenth normal potassium permanganate: the calcium oxide content is not less than 17.3 and not more than 17.7 per cent. cent.

SODIUM r-LACTATE ONE-SIXTH MOLAR (See Revised Supplement to New and Nonofficial Remedies, 1941, p. 27).

The following brand has been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Sodium Lactate (Racemic) ½ Molar (1.87% W/V: 500 cc. and 1,000 cc. Upjohn Infusion Bottles. Each hundred cubic centimeters contains 1 87 Gm. of sodium r-lactate in sterile distilled water.

BLENDED OIL CONTAINING VITAMINS A AND D.—A mixture of fish and/or vegetable oils to which viosterol may be added. The vitamin A content is not less than 1,800 U. S. P. units per gram and the vitamin D content not less than 175 U. S. P. units per gram.

Actions and Uses-See article Vitamins A and D Preparations, N. N. R., 1941, page 562.

Dosage .- See article Vitamins A and D Preparations, N. N. R, 1941, page 562.

Blended oil containing vitamins A and D occurs as a thin, liquid oil baving a fishy but not rancid odor and a fishy taste. It is involuble in water, slightly soluble in alcohol and soluble in chloroform, ether, benzene, ethyl acetate and carbon disulfide. The specific gravity is from 0918 to 0.929 at 25 C. The refractive index is from 1474 to 1479 at 25 C.

A solution of one drop of blended oil containing vitamins A and D in 1 cc of chloroform, when shaken with one drop of sulfunc acid, acquires a blue color, gradually changing to purple Fill a tall cylindric tube of about 120 cc capacity with the oil and maintain at 0 C for five hours, the oil remains clear and fluid and deposits no solid material

five hours, the oil remains clear and fluid and deposits no solid material Dissolve 2 Gm, accurately weighed, of blended oil containing ultimity A and D in 30 cc. of a mixture of equal parts of ether and alcohol, previously neutralized to phenolphthalein, and boil gently under a reflux condenser for ten minutes. Cool and titrate the mixture with tenth normal sodium hydroxide to the production of a pink color which per sists for thirty seconds, not more than 1 cc of tenth normal sodium hydroxide is required (free acid). The unsaponifiable matter in Mended oil containing vitamins A and D is not more than 15 per cent when determined according to the method as given in the U. S. P. XI. The iodine value is not less than 145 nor more than 180. The saponification value is not less than 186 nor more than 202.

MEAD JOHNSON & CO., INC., EVANSVILLE, IND.

Mead's Blended Oil Containing Vitamins A and D: bottles 4 fluid ounces.

U. S patent 1,680,818 (Aug. 14, 1928; expires 1945) and 1,861,136 (Aug. 9, 1934; expires 1951) under license of the Wisconsin Alumni Research Foundation.

Irradiated ergosterol, prepared by the method described under Mead's Viosterol in oil, is added to fish liver oil, sardine oil and maire oil, and the finished product is required to have a vitamin A potency of not less than 1,800 units (U. S. P.) per gram and not less than 175 units (U. S. P.) of vitamin D per gram

DEXTROSE (See New and Nonofficial Remedies, 1941, p 179).

The following additional dosage forms have been accepted: HOSPITAL LIQUIDS, INC., CHICAGO.

Dextrose 20% (W/V) in Distilled Water in Filtrair Container: 500 cc, 1,000 cc, and 2,000 cc, bottles Each hundred cubic centimeters contains dextrose-U. S P. 20 Gm

Dextrose 50% (W/V) in Distilled Water: 50 cc. and Each hundred cubic centimeters contains dextrose-100 cc vials Ea U. S. P. 50 Gm.

Dextrose 21/2% (W/V) in Physiologic Sodium Chloride Solution in Filtrair Container: 500 cc, 1,000 cc, and 2,000 cc. bottles. Each hundred cubic centimeters contains dextrose-U. S. P. 2.5 Gm and sodium chloride-U. S. P. 09 Gm

Dextrose 71/2% (W/V) in Physiologic Sodium Chloride Solution in Filtrair Container: 500 cc, 1,000 cc and 2,000 cc. bottles. Each hundred cubic centimeters contains dextrose-U. S. P. 7.5 Gm. and sodium chloride-U. S P. 09 Gm

Dextrose 20% (W/V) in Physiologic Sodium Chloride Solution in Filtrair Container: 500 cc, 1,000 cc. and 2,009 cc. bottles. Each hundred cubic centimeters contains dextrose-U. S. P. 20 Gm. and sodium chloride-U. S. P. 09 Gm

Dextrose 5% (W/V) in Isotonic Solution of Three Chlorides in Filtrair Containers: 500 cc., 1,000 cc. and 2,001 cc. bottles. Each hundred cubic centimeters contains destrose-U. S. P. 5 Gm, sodium chloride-U. S. P. 07 Gm, potassium chloride-N. F. 003 Gm. and calcium chloride-U S. P. 0025 Gm

Dextrose 10% (W/V) in Isotonic Solution of Three Chlorides in Filtrair Container: 500 cc., 1,000 cc. and 2093 cc. bottles. Each hundred cubic centimeters contains dextros-U. S. P. 10 Gm., sodium chloride-U. S. P. 0.7 Gm. potassium chloride-N. F. 0.03 Gm. and calcium chloride-U S. P. 0 025 Gm

SILVER NITRATE (See New and Nonofficial Remedies, 1941, p. 499).

The following dosage form has been accepted:

THE WM. S. MERRELL CO., CINCINNATI.

Solution Silver Nitrate 1% W/V: 0.5 cc. wax ampules.

ANTIPNEUMOCOCCIC SERUM, TYPE 1 (FROM RABBITS) (See New and Nonofficial Remedies, 1941, p. 447).

The following brand has been accepted: LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Antipneumococcic Serum (Rabbit), Type 1: Vials, 20,000 and 50,000 units. A refined and concentrated globulin solution of pneumococcus antibodies prepared by immunizing rabbits against virulent cultures of the type 1 pneumococcus. It contains 0.4 per cent phenol and 1-50,000 phenyl mercuric acetate as a preservative.

ANTIPNEUMOCOCCIC SERUM, TYPE 2 (FROM RABBITS) (See New and Nonofficial Remedies, 1941, p. 448).

The following brand has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Antipneumococcic Serum (Rabbit), Type 2: Vials, 20,000 and 50,000 units. A refined and concentrated globulin solution of pneumococcus antibodies prepared by immunizing rabbits against virulent cultures of the type 2 pneumococcus. It contains 0.4 per cent phenol and 1-50,000 phenyl mercuric acetate as a preservative.

ANTIPNEUMOCOCCIC SERUM, TYPE 3 (FROM RABBITS) (See New and Nonofficial Remedies, 1941, page 449).

The following brand has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Antipneumococcic Serum (Rabbit), Type 3: Vials, 20,000 and 50,000 units. Also available in vials containing 100,000 units. Each package contains a vial of normal rabbit serum (1:10 dilution) for the conjunctival test. A refined and concentrated globulin solution of pneumococcus antibodies prepared by immunizing rabbits against virulent cultures of the type 3 pneumococcus. It contains 0.4 per cent phenol and 1-50,000 phenyl mercuric acetate as a preservative.

ANTIPNEUMOCOCCIC SERUM, TYPE 4 (FROM RABBITS) (See Revised Supplement, 1941, page 30).

The following brand has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Antipneumococcic Serum (Rabbit), Type 4: Vials, 20,000 and 50,000 units. A refined and concentrated globulin solution of pneumococcus antibodies prepared by immunizing rabbits against virulent cultures of the type 4 pneumococcus. It contains 0.4 per cent phenol and 1-50,000 phenyl mercuric acetate as a preservative.

ANTIPNEUMOCOCCIC SERUM, TYPE 5 (FROM RABBITS) (See New and Nonofficial Remedies, 1941, page 449).

The following brand has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Antipneumococcic Serum (Rabbit), Type 5: Vials, 20,000 and 50,000 units. A refined and concentrated globulin solution of pneumococcus antibodies prepared by immunizing rabbits against virulent cultures of the type 5 pneumococcus. It contains 0.4 per cent phenol and 1-50,000 phenyl mercuric acetate as a preservative.

ANTIPNEUMOCOCCIC SERUM, TYPE 7 (FROM RABBITS) (See New and Nonofficial Remedies, 1941, page 450).

The following brand has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Antipneumococcic Serum (Rabbit), Type 7: Vials, 20,000 and 50,000 units. A refined and concentrated globulin solution of pneumococcus antibodies prepared by immunizing rabbits against virulent cultures of the type 7 pneumococcus. It contains 0.4 per cent phenol and 1-50,000 phenyl mercuric acetate as a preservative.

ANTIPNEUMOCOCCIC SERUM, TYPE 8 (FROM RABBITS) (See New and Nonofficial Remedies, 1941, page 451).

The following brand has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Antipneumococcic Serum (Rabbit), Type 8: Vials, 20,000 and 50,000 units. A refused and concentrated globulin solution of pneumococcus antibodies prepared by immunizing rabbits against virulent cultures of the type 8 pneumococcus. It contains 0.4 per cent phenol and 1-50,000 phenyl mercuric acetate as a preservative.

ANTIPNEUMOCOCCIC SERUM, TYPE 14 (FROM RABBITS) (See The JOURNAL, Dec. 13, 1941, page 2073).

The following brand has been accepted:

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Antipneumococcic Serum (Rabbit), Type 14: Vials, 20,000 and 50,000 units. A refined and concentrated globulin solution of pneumococcus antibodics prepared by immunizing rabbits against virulent cultures of the type 14 pneumococcus. It contains 0.4 per cent phenol and 1-50,000 phenyl mercuric acetate as a preservative.

SOLUBLE IODOPHTHALEIN (See New and Non-official Remedies, 1941, p. 233).

Ampuls Iodeikon, 3.5 Gm. Lakeside: Each ampul contains 3.5 Gm. of iodeikon (soluble iodophthalein).

Prepared by Lakeside Laboratories, Inc., Milwaukee.

VIOFORM-CIBA (See New and Nonofficial Remedics, 1941, p. 297).

The following additional dosage form has been accepted: Tablets Vioform-Ciba, 250 mg.

SULFAPYRIDINE (See New and Nonofficial Remedies, 1941, p. 511).

The following dosage form has been accepted:

ENDO PRODUCTS, INC., RICHMOND HILL, N. Y.

Tablets Sulfapyridine: 0.5 Gm. (71/2 grains).

MAGNESIUM TRISILICATE (See New and Non-official Remedies, 1941, p. 343).

The following dosage form has been accepted:

LAKESIDE LABORATORIES, INC., MILWAUKEE.

Tablets Magnesium Trisilicate: 0.49 Gm. (71/2 grains).

AMNIOTIN (See New and Nonofficial Remedies, 1941, p. 375).

The following additional dosage forms have been accepted:

Amniotin Capsules, 10,000 International Units.

Anniotin Capsules, 10,000 International Units.

Anniotin in Corn Oil, 20 cc. vials, 2,000 International Units per cc.

Anniotin in Corn Oil, 10 cc. vials, 10,000 International Units per cc.

ASCORBIC ACID-U. S. P. (See New and Nonofficial Remedies, 1941, p. 557).

The following dosage form has been accepted:

Tablets Ascorbic Acid-SMACO, 100 mg. Prepared by the S. M. A. Corporation, Chicago.

SUSPENSION OF EPINEPHRINE IN OIL, 1:500 (See New and Nonofficial Remedies, 1941, p. 255).

Epinephrine in Oil, 1: 500-Lakeside.—A brand of suspension of epinephrine in oil, 1: 500-N. N. R.

Manufactured by The Lakeside Laboratories, Inc., Milwaukee. No U. S. patent or trademark.

Ampules Epinephrine in Oil, 1:500-Lakeside, 1 cc.: A suspension of 2 mg. powdered epinephrine crystals in 1 cc. of sesame oil.

DIGITALIS (See New and Nonofficial Remedies, 1941, p. 204).

ENDO PRODUCTS, INC., RICHMOND HILL, N. Y.

Tablets Digitalis: 34 grain (1/2 U. S. P. unit) and 11/2 grains (1 U. S. P. unit) (enteric coated). The tablets are first coated with a white shellac and then sugar-coated green.

AMINOPYRINE (See New and Nonofficial Remedies, 1941, p. 399).

The following dosage form has been accepted:

THE WM. S. MERBELL CO., CINCINNATI.

Tablets Aminopyrine: 0.324 Gm. (5 grains).

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO, ILL.

Cable Address - - - "Medic, Chicago"

Subscription price . . . Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new, always state whether the change is temporary or permanent. Such rotice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, APRIL 4, 1942

## THE ATLANTIC CITY SESSION

Several Fellows of the American Medical Association have suggested that the Atlantic City session might be removed to the interior of the country because of the possibility of increased danger on the sea coast. To obtain an official expression of opinion on this point, the editor of The Journal consulted Robert P. Patterson, Under Secretary of War, in Washington. Mr. Patterson writes:

# Dear Dr. Fishbein:

I have your letter of March 23 raising the question as to whether it would be advisable to move the convention of the American Medical Association away from Atlantic City.

I know of no valid reason why this convention should not be held in Atlantic City. The partial black-out of that city has been ordered to provide safer passage of ships which would be silhouetted against the bright lights of the city.

I want to take this occasion to express my appreciation and that of the War Department for the splendid work that the American Medical Association is doing and will continue to do to aid the Army in the recruitment of physicians who are so badly needed.

# Robert P. Patterson, Under Secretary of War.

The Atlantic City hotels report many reservations; several leading hotels are already completely reserved. The program is complete, including several special sessions devoted to military medical problems. The Convention Number, giving full details, is scheduled for May 2.

# MODERN BREAD

For some two years medical and nutritional scientists have discussed the nutritional significance of bread, lawyers have argued about regulations pertaining to flour and bread, advertising copy writers have written about the new enriched bread. Consumers apparently have continued to pay scant attention to the important changes that have been made recently in this basic

food. The average American consumes each day about 6¼ ounces of white flour in various forms; to a large extent flour is used as white bread and other bakery products. This amount of flour will provide about one fourth of the average daily caloric requirements. The amount of white pan bakers' bread consumed daily is sufficient to provide each man, woman and child in the country with 70 Gm. of bread each day, or approximately two and one-third slices weighing 30 Gm. each. Nearly all this bread is consumed without special regard to its nutritional value.

Bread today is not the same as ordinary white bread of previous years. Now bakers use greater quantities of dried skim milk in the dough for all bread except Vienna style loaves. Rye bread and whole wheat bread also are ordinarily made without milk solids. If the skim milk solids are added at the rate of 6 pounds to each hundred pounds of flour (much of the white bread now is made with only half as much) the resulting white bread has almost the same riboflavin content as whole wheat bread made with water. Such milk bread has appreciably more calcium, from the milk solids, than the wheat grain. The milk proteins also represent a significant contribution. Nevertheless, ordinary white bread, while it is a good food, does not supply as much dietetic value as nutritional experts consider a bread should provide.

In a monograph entitled "Modern Bread from the Viewpoint of Nutrition," Sherman and Pearson 1 discuss the fundamental characteristics of bread as food, the individual nutritional essentials of importance in wheat and in bread, and the progress that has been made toward improving bread. Whole wheat, say Sherman and Pearson, is an excellent source of iron, but about four fifths of the iron of whole wheat is rejected in the milling of ordinary white flour. The grain is a good source of the vitamins of the B complex, especially of thiamine, but thiamine and riboflavin and nicotinic acid are largely lost in the milling of white flour. Recent work by Elvehjem, as yet unpublished, indicates that other factors of the vitamin B complex are rather uniformly distributed throughout the grain so that white flour and whole wheat flour are both fair sources of pantothenic acid and pyridoxine. Enriched bread will have a considerable portion of the original thiamine restored, and some of the nicotinic acid.

There are three principal methods by which a baker can make enriched bread. One is by using enriched flour instead of ordinary flour. Another is by incorporating in the dough a concentrate of either milling products of wheat or an artificial preparation of the desired composition. Another method is to use a yea-t

^{1.} Sherman, H. C., and Pearson, C. S.: Modern Bread from the View point of Nutrition, New York, Macmillan Company, 1942

which has enhanced nutritive value. By any of these methods a white bread indistinguishable from ordinary white bread is obtained or it may have a light creamy color or yellowish brown. Nutritionally it is far superior to ordinary bread. Enriched bread does not have some of the disadvantages of whole wheat bread, although the latter is recognized as a meritorious product. The disadvantages overcome are the higher amount of roughage in whole wheat bread, which some persons are not able to tolerate, and the difficulty of keeping whole wheat flour.

The vast majority of Americans prefer white bread to dark bread. Enriched bread can be made to satisfy this wish without much sacrifice of nutritive values that are associated with the darker breads. In England nutritionally improved bread is made with flour of 85 per cent extraction,2 meaning that only 15 per cent of the wheat grain is not incorporated in the flour. Ordinary white flour represents about 70 per cent extraction of the grain. The British bread is fortified with calcium salts, which is an optional ingredient of American enriched bread.

Each slice of either white, enriched or whole wheat bread will supply roughly about 15 Gm. of carbohydrate and 3 Gm. of protein, yielding about 70 calories. A slice of white bread will have about 0.02 mg. of thiamine, a slice of enriched bread will have about 0.07 mg., and a slice of whole wheat bread will have about 0.10 mg. of thiamine. Of nicotinic acid the amounts would be in each slice 0.2, 0.4 and 0.7 mg., the enriched bread again being intermediate in value between that of white bread and that of whole wheat bread. iron content of the three products will be 0.1, 0.3 and 0.8 mg. respectively for a slice of white, enriched or whole wheat bread. These figures are based on the assumption that the enriched bread is of the minimum value that has been developed for this product. The tendency is definitely to aim toward the minimum rather than the maximum, which is four times more, or some intermediate value. Final standards for enriched bread have not yet been formulated by the Food and Drug Administration. It has been decided, however, that riboflavin, for which standards have been established for enriched flour, will not be required as an ingredient of that product until after the middle of the year 1942.

Within recent years all the changes and improvements in this product have been toward the improvement of its nutritive quality. In the development of enriched bread, bakers have been guided by leading scientists and medical investigators. Sherman and Pearson observe that enriched bread may now safely be utilized to supply as much as 40 per cent of the calories of the normal diet, provided the greater consumption of enriched bread is at the expense of less

nourishing foods. This is an important observationbread is exceptional from the point of view of economy. More than ever before bread deserves to be called the staff of life. Consumers who buy white bread should demand enriched bread.

1219

### SYNTHESES IN THE INTESTINE

The manifold functions of the intestine create many practical problems for the physician. Not the least of these is the fact that the intestine is not sterile; probably the first swallow of food of the newborn The observation that the clotting infects the tract. time of the blood is reestablished at the normal level ordinarily within a week indicates that the intestinal bacterial activity involved in the synthesis of vitamin K is active at that time. Through this symbiotic activity, no doubt, the organism as a whole reaps benefits of various kinds from the biochemical reactions in the intestine. Vigorous support for this thesis has been adduced by some recent observations of synthetic activity in ruminants.

Although micro-organisms can flourish on nutrient mediums whose nitrogen is provided by such simple organic compounds as asparagin, succinamide and urea. only amino acid nitrogen, either as such or in the form of protein, will suffice to promote nutritive well being in the mammal. Nevertheless, in cattle and sheep, nitrogen balance and growth can be promoted when urea provides the major part of the nitrogen. Even the nitrogen of ammonium bicarbonate is utilized.1 In recent investigations Harris and Mitchell 2 have demonstrated that urea added to a basal low protein ration not only decreases the loss of body protein of adult sheep but also improves the appetite and the digestibility of the other constituents of the diet. Furthermore, in studies on growing lambs it was shown that nearly normal growth is afforded by the nitrogen of the urea and that the increments of tissue growth are normal in chemical composition. Do these experimental results indicate that the ruminant has a strikingly different requirement for nitrogenous compounds than do man and the carnivora? The evidence indicates that the bacteria in the multiple pouched stomach of these types, utilizing the simple nitrogenous compounds provided in the experimental ration, synthesize their own cell protein and that this bacterial protein then becomes available for the nutrition of the host.

Synthetic activity of intestinal bacteria has been demonstrated in other directions. In a series of studies 3

² Specifications for National Flour, Nature 147: 665 (May 31) 1941.

^{1.} Hart, E. B.; Bobstedt, Gustav; Deubald, H. J., and Wegner, M. I.; J. Diary Sc. 22: 785 (Oct.) 1939.

^{2.} Harris, L. E., and Mitchell, H. H.: J. Nutration 22:167, 183

Aug.) 1941.

3. McElroy, L. W., and Goss, Harold: J. Nutrition 20:527, 541 (Dec.) 1940. Wegner, M. I.; Booth, A. N.; Elvehjem, C. A., and Hart, E. B.: Proc. Soc. Exper. Biol. & Med. 45:749 (Dec.) 1940; 47:90 (May) 1941. Hunt, C. H.; Kick, C. H.; Rutroughe, E. W.; Bethke, R. M.; Schalk, A. F., and Gerlaugh, Paul. J. Nutrition 21: 85 (Jan.) 1941.

on rumen contents of sheep and cattle secured either after slaughter or by means of a permanent fistula it has been demonstrated that the bacteria in the intestine are able to synthesize thiamine, riboflavin, pyridoxine, pantothenic acid and nicotinic acid as well as vitamin K. This formation of vitamins by intestinal bacteria, which occurred on natural feeds and on experimental rations, can be considered a more or less significant source of these indispensable factors to these animals.

Doubtless similar reactions take place in the human intestine, though the magnitude is too limited to be of practical significance. Nevertheless, such studies suggest that products of bacterial activity may play a part in instituting more favorable conditions in the intestine in man, such as follow implantation of Bacillus acidophilus. They may even play a part in immunity.

# Current Comment

# IMMUNIZATION IS 1942 MAY DAY OBJECTIVE

By authorization of an act of Congress, the President of the United States annually proclaims May Day. May 1, as Child Health Day. Usually special attention is given to the health of infants and children with special reference to preventive measures such as well baby supervision, immunization against communicable diseases, protection of the milk supply and water supply, and corrective measures relating to so-called physical defects. This year May Day is to have a special objective. The migration of populations as a result of defense and war industry, and the building of cantonments with consequent mushroom growth in surrounding communities, plus the necessity for being prepared for possible evacuation has emphasized the danger of epidemics of communicable diseases. The United States Children's Bureau, which is responsible for the May Day celebration, recommends that a major effort be made to secure at once the immunization of all children over 9 months of age against the two diseases for which established methods of immunization are available: smallpox and diphtheria. Instead of waiting for May Day, the Children's Bureau, under the Presidential proclamation, will call specifically for an immediate effort to immunize all children over 9 months of age and, as soon as possible after the ninth month, against these two diseases. Private physicians, public clinics, dispensaries and hospital outpatient departments are urged to make every effort to have these immunizations performed in all children touched by their respective services. This should be achieved before May I as a contribution to the health of the nation's children and as a wise precaution against possible epidemics which might go far to disrupt or slow war production or the training of soldiers. These diseases might spread from foci near camps and war industries into the industrial

populations and the military and naval forces themselves. Adults, especially those not previously immunized against diphtheria, may be susceptible to these diseases, especially if they come from remote rural areas. In Hygeia in March there were published special articles on diphtheria immunization and smallpox vaccination, and many thousands of reprints are being distributed by health departments in various states. Although not specifically included in the May Day objective, immunization against typhoid, tetanus, whooping cough and scarlet fever may also be performed when indicated in the judgment of the physician.

# "DOCTORS AT WORK" AUDIENCE CHECK

Radio program audiences can be checked in several ways. Audience mail response is one of the quickest and easiest, and, if interpreted conservatively, most satisfactory. Few programs receive audience mail in appreciable amount unless some effort is made to cause listeners to write. "Doctors at Work," the radio program of the American Medical Association and the National Broadcasting Company, now in its second season, has no product to offer for sale. To ascertain how many listeners would respond to an offer to send them printed material in the field of health education, Doctors at Work in January 1941 offered a list of first aid supplies and how to use them, suitable for pasting inside the medicine cabinet door. This was announced on two successive programs, only one short reference being made at the end of each broadcast. The offer brought 8,200 letters and cards requesting the list. In April, just as the touring season began to open, another test was made, this time of a chart and table of highway health and accident safeguards. This offer, made in the same way as that in January, brought only 2,800 replies. In 1940-1941, Doctors at Work enjoyed the advantage of a favorable evening hour, 10:30 p. m. eastern time, Wednesdays. In the 1941-1942 season a suitable evening hour was not available, and the series was opened on December 1 at 5:30 p. m. eastern time, Saturdays. In a few weeks this time was switched to 5 o'clock eastern time, where it has since remained. In March 1942 an offer was made to listeners to send them a check list of fifty factors which contribute to the health of home and family, an instrument by which their own health practices could be evaluated. The offer was made in the usual fashion, one short reference on two successive The number of replies exceeded 8,600 broadcasts. (8,650, March 31). It is, of course, impossible to estimate accurately the actual number of listeners from such responses. However, only small percentages of listeners respond even to an offer of more or less tangible objects, such as usable samples. The responses to audience mail tests here reported are considered in radio circles highly satisfactory for a noncommercial program. Doctors at Work has a large following of faithful listeners. This following is nationwide; every state is represented in this response, as are Canadian listeners.

# MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

# PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

## CIVIL SERVICE COMMISSION RECOM-MENDS ENROLMENT

In the past, the U. S. Civil Service Commission, in furnishing to federal agencies the names of physicians, dentists and veterinarians who had qualified in civil service examinations, has found that the making of appointments has been retarded by an excessive proportion of declinations from those eligible when appointment was offered. Persons who were available for federal medical positions when the examination was held were no longer available for such appointment when their names were reached on the commission's register of the eligible.

The present war emergency demands promptness in filling vacancies in various governmental agencies, and the determination of immediate availability of applicants for civil service employment early in the examining process has become of increasing importance. The U. S. Civil Service Commission, therefore, is recommending that all physicians, dentists and veterinarians who are interested in civil service employment enrol with the Procurement and Assignment service, and that they definitely indicate on the questionnaire the governmental agency in which they desire employment.

The agencies which employ the largest number of physicians and dentists under civil service regulations are the Veterans Administration, the Indian Service (Department of the Interior), the Public Health Service

(Federal Security Agency), the Panama Canal and the Children's Bureau (Department of Labor).

At present there is a shortage of fully qualified physicians who are available for employment in the federal civil service, and it is important that more of the physicians who are not available or qualified for commissions in the Army, Navy or Public Health Service offer their services during the war emergency in a civilian capacity in federal agencies having civilian medical services.

In accordance with an executive order, "war service" appointments are now being made in the various governmental agencies. Such appointments are for the duration of the war and for six months thereafter. The physical requirements for war service appointments are liberal. Appointments are being made of physicians who qualify for the associate or full grade medical officer under the U. S. Civil Service Commission's current open continuous examination. To qualify as the associate or full grade medical officer, physicians must have graduated from an approved medical school subsequent to May 1, 1920.

The U. S. Civil Service Commission will utilize the information obtained by the Procurement and Assignment Services's enrolment program in recruiting physicians, dentists and veterinarians to fill the needs of the civilian medical, dental and veterinarian services of governmental agencies.

VERNE K. HARVEY, M.D., Washington, D. C. Medical Director, U. S. Civil Service Commission.

### FEDERAL CIVIL SERVICE

## VERNE K. HARVEY, M.D., Washington, D. C.

The U. S. Civil Service Commission, responsible for the recruitment of medical and other personnel for positions in the federal government which are subject to civil service law, joins other federal agencies in urging physicians, dentists and veterinarians to enroll with the Procurement and Assignment Service when the enrolment forms are mailed in the very near future.

The commission emphasizes that the lists compiled through the enrolment will be utilized in filling not only positions in the commissioned medical services of the War and Navy departments and the Public Health Service but positions in civilian medical services of federal agencies as well.

The commission is continuing to recruit medical officers by the direct method of announcing and publicizing examinations for medical positions. An examination for medical officer, for example, has been announced on a "continuously open" basis. But the demands of the federal agencies, rapidly expanding as a result of the national emergency, cannot be met by this method alone.

As a supplementary measure, therefore, the commission will call for the names of qualified persons appearing on lists of the

Procurement and Assignment Service who have indicated in their enrolment forms that they are interested in serving in a civilian capacity in one of the federal agencies. The Procurement and Assignment Service will give due consideration to whatever other requests for personnel are pending and then furnish to the commission the names of available physicians, dentists or veterinarians. The Procurement and Assignment Service would select the names of (a) persons who had indicated in their enrolment forms that they were primarily interested in positions in the federal civil service and (b) persons who had expressed a preference for positions in the commissioned service of the War or Navy Department or the Public Health Service but were not qualified therefor. In either instance, only those persons who met the requirements of the commission's examination would be certified to an agency for appointment.

### ENROLMENT

Physicians, dentists and veterinarians are requested to indicate in spaces provided on the enrolment form in which of the following classes of medical service they prefer to assist: (1) military (commissioned services of the War and Navy departments and the Public Health Service), (2) governmental (civil service), (3) industrial and (4) civil (nongovernmental). They should indicate their first, second, third and fourth preferences.

Under the heading "U. S. Civil Service Agencies" is a list of some of the federal agencies which maintain civilian medical

services. Those who are interested in employment in the federal civil service should indicate the agency in which they prefer to serve.

## PROCEDURE IN MAKING RECOMMENDATIONS

In recognition of the Procurement and Assignment Service's role as the central agency coordinating the distribution of medical personnel, the Civil Service Commission will proceed as follows when applications are received in response to announcement of civil service examinations for physicians, dentists and veterinarians:

- 1. The names of those applicants who have received an eligible rating will be submitted to the Procurement and Assignment Service, with the view of determining whether or not such applicants are essential in their present positions and localities.
- 4. The names of those persons who have been designated by the Procurement and Assignment Service as being essential in their present positions and localities will not be certified, and such persons will be notified by the United States Civil Service Commission that they cannot be certified in view of the action taken by the Procurement and Assignment Service.
- 3. The names of those persons who have been designated as available will be certified as candidates to fill the personnel needs of the various government agencies under civil service rules and regulations.

### POSITIONS NOW OPEN IN CIVIL SERVICE

Under an executive order which became effective March 16, 1942 appointments to positions in the federal civil service (those positions in the federal executive civil service which are subject to the Civil Service Act) are placed on a "war service" basis. Appointments are made with the understanding that, provided satisfactory service is rendered, tenure will be for the duration of war and for six months thereafter. Probationary, or "permanent," appointments have been discontinued "for the duration."

Civil service examinations are now open for associate medical officer, \$3,200 a year; medical officer, \$3,800, and senior medical officer, \$4,600. No written test is required. Determination as to whether an applicant is eligible or ineligible for appointment is made on the basis of his education and experience. Applications are considered for any of fifteen optional branches of medical science. Full information regarding the medical officer examinations is set forth in a printed announcement which may be consulted at any first or second class post office. Copies may be obtained by writing to the U. S. Civil Service Commission, Washington, D. C.

A diversified field is open to the physician who elects to assist in the civilian medical services of the federal government during the emergency. The field encompasses virtually every phase of medical activity, ranging from rural practice to the most highly specialized activities.

# THE INDIAN SERVICE

Not all civil service physicians are employed in large government hospitals. Many—for example, those employed in the Indian Service—are engaged in the general practice of medicine. The Indian Service maintains general hospitals and sanatoriums ranging from fifty to two hundred and fifty beds. Very active outpatient departments are connected with these hospitals. The physicians make home calls and field trips, conduct school examinations and administer general public health measures among the Indians.

### PANAMA CANAL ZONE

Physicians who are interested in tropical diseases receive excellent opportunities to study that subject in the Canal Zone. Civil service physicians in the Canal Zone are employed primarily in dispensary and quarantine work. The dispensary work consists of general practice involving the attendance of government employees and their families, and crews and passengers of vessels. Quarantine physicians are concerned with quarantine and immigration inspection of crews and passengers on incoming vessels.

# VETERANS ADMINISTRATION-SPECIAL SERVICES

Large numbers of federal medical officers are engaged in the fields of general practice, tuberculosis, psychiatry, surgery and public health. The opportunity for research in these fields is excellent. The Veterans Administration operates a large tumor clinic at Hines, Ill., tuberculosis clinics at the tuberculosis hos-

pitals, and heart clinics at Mount Alto Hospital, Washington, D. C. At St. Elizabeths Hospital, Washington, D. C., fine opportunities for residencies and internships in neuropsychiatry are open to recent graduates of medical schools. This hospital is under the jurisdiction of the Federal Security Agency.

### FOOD AND DRUG ADMINISTRATION

Medical officers in the Food and Drug Administration (Federal Security Agency) are engaged in a critical review of the labelings of medicines in the light of their composition for the purpose of ascertaining whether or not the therapeutic representations are true or false as judged by a consensus of present day medical opinion. This work offers excellent opportunities to recent graduates of medical schools who have had, in addition to their regular medical education, experience in pharmacology.

# CHILDREN'S BUREAU

The Child Hygiene Division of the Children's Bureau (Department of Labor) carries on research and investigation involving fundamental technical medical investigations of the mental and physical condition of children in relation to heredity, environment, nutrition and the efficacy of various methods of community health work. There are opportunities in this bureau for physicians with special training in pediatrics, obstetrics or public health procedure.

### PUBLIC HEALTH SERVICE

Civilian medical officers in the Public Health Service (Federal Security Agency), as distinguished from medical officers in the commissioned force, are appointed as acting assistant surgeons and are usually detailed for local duty in the vicinity in which they reside. From time to time, however, there is opportunity for them to transfer elsewhere. They are employed in connection with practically all the activities of the Public Health Service. These include hospital and relief work, quarantine and immigration work, field investigations and epidemic control duty. The Public Health Service operates marine hospitals and relief stations throughout the United States. The beneficiaries in these hospitals and relief stations consist principally of merchant seamen, officers and enlisted men of the United States Coast Guard and civil employees of the federal government injured in line of duty.

The services of acting assistant surgeons are utilized at a large number of marine quarantine stations in connection with the inspection of vessels entering the United States from foreign ports and in connection with the medical examination of aliens entering this country. Acting assistant surgeons conduct investigations pertaining to industrial hygiene, goiter, anthrax, influenza, malaria, pellagra, pneumonia, tuberculosis, typhoid, child hygiene and public health administration.

### VETERANS ADMINISTRATION

The Veterans Administration employs more civil service physicians than any other government agency. The medical service of the Veterans Administration comprises regional offices, facilities and diagnostic centers. The term "facility" is applied to various types of field stations, including those which are hospitals only, those which may provide domiciliary care and hospitalization, others which are a combination of regional offices and hospitals, and still others which are a combination of regional offices and homes. Facilities may be primarily designed for general (medical and surgical) service or for tuberculosis or neuropsychiatric service. However, some have a mixed service which may be a combination of any of these.

New appointees are first sent to one of several selected facilities of the Veterans Administration, at which they are given a training course in medical subjects and in administration, as based on the Regulation and Procedure, the Manual for Medical Examiners, clinical bulletins and other instructional publications of the Veterans Administration. After passing an examination at the end of this preliminary training course, appointees are assigned at the same or another facility for ward and other duties pertaining to an associate physician. Physicians in the service must be available for transfer to any facility within the continental limits of the country as need for their service arise.

The diagnostic centers located at Washington, D. C. Hines, III., and San Francisco were established for intensive study and

observation of patients presenting diagnostic problems and have consultant staffs consisting of physicians of national reputation in their fields. The diagnostic center at Hines, Ill., has one of the largest and most modern tumor clinics in the world.

Small clinics for thorough diagnosis and treatment of malignant growths are located strategically in facilities in New York City, Washington, D. C., Atlanta, Ga., Portland, Ore., and Los Angeles.

In nine facilities, scattered throughout the country, centers have been created for special chest surgery.

The volume and variety of the medical activities of the Veterans Administration are approached by few if any other organization. Veterans of former wars constitute a public of approximately four and one-half million persons who are potentially entitled to treatment by the Veterans Administration. Continuous accretions to that total are made through discharges from service of disabled officers and enlisted men of the Army, Navy, Marine Corps and Coast Guard. The huge total of hospital beds is constantly in demand, and abundant clinical material is afforded in all fields of medicine save obstetrics and pediatrics. The proportions of outpatient activities are unprecedented: In the fiscal year ended June 30, 1941 a total of 1,111,589 physical examinations were made and 1,176,658 treatments were rendered in the outpatient service. It is not only the numerical proportions of this service that make it valuable but quite as much the peculiar advantage derived from the continuity of contact that is afforded. It is the usual experience of civilian clinics to have patients drop off before completion of study or treatment; but the reexaminations that are called for from time to time, for purposes of pension, disability, compensation, government insurance, treatment and so on insure follow-up of Veterans Administration beneficiaries through successive years. The evolution of conditions can thus be observed, errors in earlier diagnoses can be corrected, and treatment to meet present indications can be prescribed to advantage through these circumstances.

The Veterans Administration is committed to and maintains a high standard of medical treatment and care. Clinicopathologic conferences of hospital staffs are regularly held. Continuous attention is given to the introduction of new diagnostic and

treatment methods, and the laboratory and clinical equipment is of modern design. Postgraduate "refresher" courses, as well as postgraduate courses in the specialties, are arranged whenever necessary at several of the larger stations, and official leave may be granted for attendance at courses in other clinics and hospitals in the country.

Medical research is supervised by a specially trained physician of the staff of the medical director, and projects are entrusted to physicians having the basic special qualifications to conduct them or who show aptitude for research. The Cardiovascular Research Unit, at Washington, D. C., was organized, under the direction of a chief, to standardize concepts and practices in cardiology, use of the electrocardiograph and so on. The Tumor Research Unit at Hines, Ill., conducts clinical and experimental research into the cancer problem and has published numerous papers and monographs on technical phases of this work. The Neuropsychiatric Research Unit at Northport, L. I., N. Y., conducts clinical and laboratory research in connection with neuropsychiatric disabilities and is engaged in standardizing the diagnostic and therapeutic methods used in connection with the management of neuropsychiatric disabilities. The Medical Bulletin of the Veterans Administration, issued quarterly, provides opportunity for the publication of articles and case reports prepared by physicians of the service.

### OTHER GOVERNMENT AGENCIES

To a lesser extent, medical officers are employed in various other government agencies. Two medical officers in the Government Printing Office are in charge of a small well equipped hospital in which employees who are injured or become ill while on duty are treated. The Bureau of Engraving and Printing requires the services of a physician for similar duty. The Census Bureau of the Department of Commerce employs physicians who engage in medical statistical study. In the Civil Service Commission in Washington, D. C., and in thirteen district offices a number of medical officers are engaged in medical activities pertaining to government employment. This activity is a combination of insurance, industrial and administrative medicine and affords young physicians a basic training in these fields which is unique in the United States.

# HEALTH OF SELECTIVE SERVICE REGISTRANTS

LEONARD GEORGE ROWNTREE, M.D. Colonel, M. C. U. S. Army; Chief, Medical Division.

Selective Service System

KENNETH H. McGILL, A.B. Chief, Research and Statistics Division and

OLIVER HAROLD FOLK, B.S., M.A. Captain, U. S. Army; Chief, Medical Statistics Section Research and Statistics Division

### Washington, D. C.

The Selective Service System is making a comprehensive analysis of the reports of physical examination of the registrants examined in accordance with the Selective Training and Service Act of 1940. Pending the complete analysis of these reports, a survey has been made of 19,923 medical records to provide an index to the physical fitness for military service of American youths between the ages of 21 and 36. This sample was drawn from each state in proportion to total registration and consists of a cross section of registrants examined prior to May 31, 1941.

### RATE AND CAUSES OF REJECTION

This sample analysis of medical records and summary reports from the Selective Service local boards indicates that about 50 per cent of the approximately two million registrants who have been examined have been found

by local boards and by Army induction stations to be unqualified for general military service, physically, mentally and educationally. Of the approximately one million registrants who were not qualified for general military service, 900,000 were so classified because of lack of physical and mental qualifications and the remaining 100,000 because of lack of educational qualifications. The minimum educational requirement for a registrant to be inducted into the Army is the ability to read and write the English language as well as a student who has satisfactorily completed the fourth grade in an American grammar school. More than one half, 470,000, of the 900,000 rejected for physical and mental reasons were qualified for limited military service only, and 430,000 were totally disqualified for any military service.

Based on the major pathologic condition recorded or the principal cause of rejection by Selective Service local boards and by Army induction stations, dental deficiencies accounted for an estimated 188,000, or 20.9 per cent of the 900,000 registrants not qualified for general military service. Defects of the eyes and impaired vision constituted an estimated 123,000, or 13.7 per cent.

The estimated number of registrants found to be unqualified for general military service by other defects or diseases are set forth in table 1 and chart 1. The table also shows a breakdown of the number who were found to be available for limited military service by Selective Service local boards and those who were dis-

qualified for any military service. Hernias, venereal diseases and defects and diseases of the teeth, eyes and feet were the principal types that, while disqualifying for general military service, still would permit the individual registrant to perform limited military service. Diseases and defects of the cardiovascular system seem to be the principal causes in total disqualifications for any military service.

Included in the miscellaneous group were diseases and defects of the mouth and gums, nose, throat, kidneys and urinary system, abdomen, genitalia and skin together with hemorrhoids, varicose veins, tumors, and

infectious and parasitic diseases.

### INCIDENCE OF DEFECTS

The major pathologic condition indicates the reason why registrants were rejected but does not afford an

number of defects tabulated. Dental defects, which were the largest cause of rejection for military service, comprised 10.3 per cent of the diseases and defects. In addition to nondisqualifying defects, a large proportion of the disqualifying defects are minor as far as health conditions are concerned.

Many defects are a cause for rejection for service in the Army but in no way hinder the performance of many civilian occupations.

# AGE, HEIGHT AND WEIGHT OF REGISTRANTS

As the reports of physical examination considered in this survey were for men examined prior to May 31, 1941, registrants between the ages of 21 and 36 were included as well as a small number of men between the ages of 18 and 21 who volunteered through the Selective Service System for military service. Two

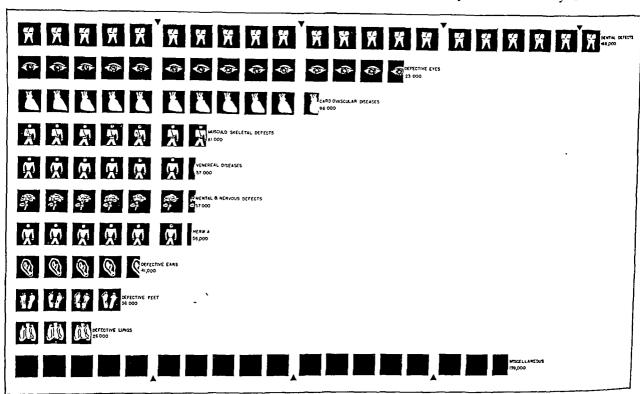


Chart 1.—Estimated number of selectees rejected. Each symbol represents 1 per cent of the 900,000 rejected.

accurate index as to the incidence and prevalence of diseases and defects among registrants. In this study a maximum of three defects was recorded. A total of 27,031 defects were tabulated from the 19,923 reports of physical examination, an average of one and fourtenths defects per registrant examined. No defects were recorded, however, for 5,741 registrants, or 29 per cent, of the total number examined. Of the total of 27,031 defects, one or more were recorded for each of 14,182 registrants, an average of one and nine-tenths defects per registrant with defects. Two defects were recorded for each of 8,433 registrants and three defects for 4,416 registrants.

In table 2 there is a list of the defects or diseases tabulated by broad classifications with the rate per thousand registrants examined. This tabulation includes defects which do not disqualify as well as defects which do disqualify for general military service. Defective feet accounted for the largest number of disease and defects recorded for any single organ, section or system of the body and comprised 10.7 per cent of the total

thirds of the registrants examined by local boards were between the ages of 21 and 27, inclusive. Registrants between the ages of 28 and 36, inclusive, accounted for 31.3 per cent of the total number examined, and the number of volunteers between the ages of 18 and 21 accounted for 2.1 per cent of the total registrants examined.

The rate of rejection for registrants between the ages of 31 and 36 was nearly twice as great as that of registrants between the ages of 21 and 25, inclusive. Sixtyone per cent of the registrants between the ages of 31 and 36 were unacceptable for general military service as compared to 45 per cent between the ages of 26 and 30 and 34 per cent between the ages of 21 and 25. The percentage who were qualified for general military service varied from 70.5 for registrants 21 years old to 29.9 for registrants who were 36 years old at the time of physical examination.

The relationship that exists between the registrants age and availability for general military service is shown

in table 3 and chart 2.

The average height of registrants examined was 67½ inches (171 cm.), the average weight was 150 pounds (68 Kg.) and the average chest measurement in forced expiration was 33½0 inches (86 cm.). The average height of registrants qualified for general military service was 68½0 inches (173 cm.) and the average weight was 152 pounds (69 Kg.). The height of registrants examined varied from 54 inches (137 cm.) to 88 inches (223.5 cm.), and 98.3 per cent of the registrants were between 60 inches (152 cm.) and 78 inches (198 cm.) in height, which are the minimal and maximal heights, respectively, for acceptance by the Army.

the registrants examined were from urban communities. The rate of rejection for registrants from urban areas was 42.4 per cent as compared to 38.1 per cent for rural areas.

The United States and its territories were the place of birth of 97.3 per cent of the registrants examined, most of the others having been born in Canada, British Isles and Europe. The rate of rejections for native born registrants was 40.9 per cent as compared to 45.6 per cent for registrants who were born outside the United States and its territories.

This finding perhaps, can be accounted for by the differences in age groups.

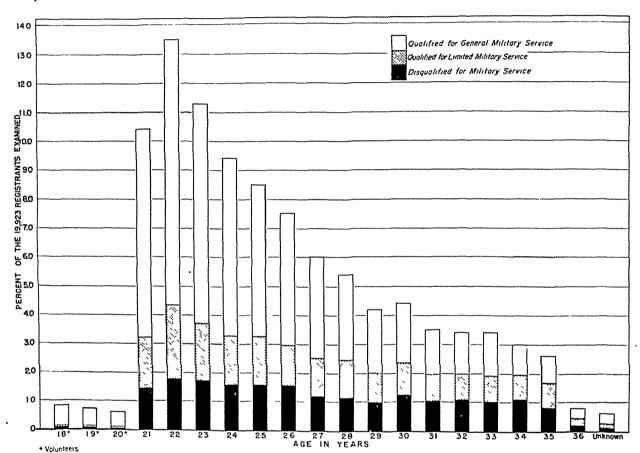


Chart 2.-Classification for inditary service in relation to age.

Registrants varied in weight from 85 pounds (38.6 Kg.) to 385 pounds (175 Kg.), and 93 per cent were between 100 pounds (45.4 Kg.) and 190 pounds (86 Kg.). The minimum weight for admittance into the Army for registrants 60 inches (152 cm.) tall is 105 pounds (47.6 Kg.), and the standard weight for a registrant 78 inches (198 cm.) tall is 184 pounds (83.5 Kg.).

# RACE, URBAN-RURAL RESIDENCE AND PLACE OF BIRTH

The ratio of Negro registrants to the total number examined was approximately the same as the ratio of Negroes to the total population, 11 per cent. Registrants of other races, which accounted for less than 1 per cent of the total number examined, were mostly Chinese, Japanese and Indians. The rate of rejection for Negro registrants was 42.6 per cent as compared to 40.8 per cent for white registrants. Two thirds of

### OCCUPATION

About one seventh of all registrants examined were unemployed at the time of examination. The largest group of employed registrants physically examined were operatives and kindred workers, which comprised about 20 per cent. Most numerous among operatives and kindred workers were chauffeurs, truck drivers, delivery men, weavers, knitters, spinners, assemblers and operators of lathes, drill presses and other machines. Farmers and farm laborers, the second largest employed group, accounted for 14 per cent of the total number examined. Craftsmen and foremen, which acounted for 8 per cent of all registrants examined, were mostly carpenters, cabinet makers, pattern makers, mechanics. repairmen, machinists, millwrights, tool makers, painters, paper hangers and printers. Approximately 1 per cent of the registrants examined were students. The occupations of the registrants examined are shown by broad classifications in table 4.

#### COMMENT

The information and data contained herein are the best available as to the health of a part of the United States male population. While these data indicate that approximately one half of the registrants being

Table 1.—Estimated Number of Registrants Found to be Unqualified for General Military Service Because of Physical and Mental Reasons, by Availability for Military Service and by Defect or Disease

	T7	.0-16				
		lifled for			P	ercentage
		ary Serv		Unqual		of Esti
	26160	ctive Serv	ice *	ified	Total	mated
	Qualife.	1 70.0		, for	Unqual-	
	Qualifico			General		Unqual
		qualified		Military		ified for
Major Defect		for Any		Service	General	General
or Disease		Military			Military	
or Disease	Service	Service	Total	Army †	Service	Service
Teeth	100,000	53,000	153,000	35,000	158,000	20 9
Lycs.	72,000	28,000	100,000	20,000	123,000	13 7
Cardiov ascular system	17,000	67,000	84,000	12,000	96,000	106
Musculoskeletal	27,000	20,000	52,000	9,000	61,000	68
Venereal	პა,000	14,000	49,000	8,000	57,000	63
Mental and nervous	8,000	00,000	38,000	19,000	57,000	63
Hernia	ა5,000	11,000	46,000	10,000	56,000	6.2
Ears	7,000	18,000	25,000	16,000	41,000	4 6
Feet	21,000	9,000	30,000	6,000	J6,000	40
Lungs ‡	6,000	11,000	17,000	9,000	26,000	29
Miscellancous	72,000	J4,000	126,000	33,000	159,600	17 7
Total	400,000	20,000	720,000	180,000	900,000	100 0

Table 2 - Incidence of Defects Found in 19,923 Registrants Examined by Selective Service Local Boards

Defect or Disease	Number of Defects 1 ound	Rate of Defects per 1,000 Examined
Eves	2,305	115 7
l ars	887	44 5
Teeth	2,795	140 ;
Mouth and gums	1,273	63 9
Nose .	1,372	68 9
Throat.	1,521	68 3
Lungs	327	16 4
Tuberculosis	114	ა7
Cardiov ascular system	2,000	100 4
Blood and blood forming organs	19	10
Hernia	1,287	64 6
Kidneys and urmary system	279	14 0
Abdominal viscera	244	12 2
Genitalia.	1,17)	<b>59 0</b>
Venereal	695	34 9
Skin	2, 108	1158
Hemorrhoids and rectal defects	610	06
	531	26 7
Varicose veins . Mental and educational deficiency and illiteracy	239	120
Mental and educational described	62	18 2
Mental disorders.	454	22 8
Neurologic	2,018	101 3
Musculoskeletal	2,888	145 0
Teet	.19	160
I ndocrine disturbances	228	11 3
Tumors Infectious, parasitic and epidemic diseases	7	0 4
Other discuses and defects	974	48 9
Total	27,031	1,356 8

examined are found to be unfit for the performance of general military service, an additional one fourth are qualified for limited military service. Registrants classed as available for limited military service are not being inducted at the present time.

There seems to be little doubt that most of the registrants classed as available for limited military service and a substantial portion of those classed as disqualified

for any military service in the United States Army evidence health conditions which would be acceptable for military duty in any army in continental Europe. Registrants are not physically examined who are found by Selective Service local boards to be essential to the national health, safety and welfare, such as those having community responsibilities to dependents or holding essential jobs

In the World War approximately 64 per cent of the 3,208,446 registrants examined between Dec. 15, 1917 and Sept. 11, 1918 were qualified for general military service. An additional 17 per cent were qualified for limited military service, and 19 per cent were disqualified for any type of military service. This compares, not so unfavorably, with about 25 per cent being totally rejected for any type of military service at the present time when it is recalled that the examinations were made under considerably different conditions During the World War period standards changed seven

Table 3 - Age of Registrants by Availability for Military Service

		otal imined	for G Mili	dified eneral tary	for L Mili	ilified imited itary	Mili	alified or tary vice
Age *	Num	Per Cent	Num	Per Cent	Num ber	Per Cent	Num	Per Cent
18 19	153 143	08 07	129 118	84 3 82 5	8 13	52 91	16 12	10 5 8 4
20 21 22	127 2,083 2,688	0 6 10 4 13 5	94 1,469 1,810	74 0 70 5 67 3	17 347 511	13 4 16 7 19 0	16 267 367	12 6 12 8 13 7
23 24	2,248 1,872	$\frac{11}{9}\frac{3}{4}$	1,504 1,222	66 9 63 3	393 343	17 5 18 3	351 307	15 6 16 4 19 3
25 26 27	1,692 1,492 1,189	85 75 60	1,034 905 682	61 1 60 7 57 4	331 276 268	19 6 18 5 22 5	327 311 239	20 8 20 1
28 29 30	1,071 839 869	54 42 44	576 435 400	538 518 460	260 213 226	24 3 25 4 26 0	235 191 243	21 9 22 8 28 0
31 32	697 681	3 5 3 4	306 282	43 9 41 4	188 188	27 0 27 6	203 211	29 1 31 0 29 7
,} ,4 ,5	669 602 527	3 <del>4</del> 3 0 2 6	2S2 212 176	42 4 35 2 3 4	188 159 172	28 1 26 4 32 6	199 231 179	38 4 34 0
0 Unknown	157	08 06	47 71	20 0 57 2	54 29	34 4 23 4	26 24	35 7 19 <del>4</del>
'l otal	19,923	100 0	11,754	<del>5</del> 9 0	4,184	21 0	3,985	20 0

* Use at last buthday at time of physical examination

times. Registrants being examined during that period were mostly between the ages of 21 and 30 as compared to 21 and 36 in the data presented here.

Advances since 1918 in clinical medicine and diagnostic and laboratory procedures now present the means of eliminating more men from the service. For example, many registrants are being rejected because of latent syphilis that would not have been recognized in the World War. Chest roentgenograms are being used extensively. Many cases of tuberculosis are being found now that could not previously have been detected. By concentrated efforts, many of the men with borderline mental conditions are being rejected at the present time who would have been accepted into the Army in 1918. Also the psychology of the examiners themselves is entirely different than that which prevailed in the World War. Then it was necessary to secure men quickly, train them hurriedly and transport them to the theater of operation in the minimal time possible. Hurried examinations did not permit the close observations that are being made today. It is essential for the men being inducted into the Army at the present time to be capable of efficient work and hard living, and to

^{*} The major defect of disease for each registrant was determined by the principal cause of rejection

† These estimates are based on classification reports from local boards as to the number qualified for limited military service, the number disqualified for any military service, and on the rates of rejection for each group of defects or diseases as revealed in an analysis of 19,923 reports of physical examination. These estimates are based on the classification reports from local boards as to the total number found unqualified for general military service at the Army induction, and on the rates of rejection for each group of defects or diseases as revealed in an analysis of 123,000 reports of physical examination at the Army induction station as released by the War Department; Including tuberculosis

¹ Second Report of the Provost Marshal General to the Secretary of War on the Operations of the Selective Service System to Dec 2) 1918 Washington D C. Government Printing Office, 1919

be otherwise capable of handling the more complicated procedure and mechanics of the modernized army.

The average height of recruits examined during the World War was 67½ inches (171 cm.), the average weight was 142 pounds (64 Kg.) and the average chest

TABLE 4.—Occupations of 19,923 Registrants
Physically Examined

Occupation	Number of Registrants Physically Examined	Percentage of Total Examined
Professional workers	226 226	3.0 1.1
Farmers (owners, tenants and eroppers) and farm managers  Proprietors, managers and officials, except	1,099	5.5
farm	779	3.9
Clerical and kindred workers	1.548	7.8
Salesmen	878	4.4
Craftsmen, foremen and kindred workers	1,679	8.4
Operatives and kindred workers	4.064	20.4
Domestic service workers	- 36	0,3
Protective service workers	64	0.3
Service workers, except domestic and protec-	0.30	
tire	936	4.7
Farm laborers and foremen	1,683	8.4
Laborers, except farm and mine	2,487	12,5
Nopelassifiable returns	571	2.9
Emergency workers and unemployed	3,042	15.3
Students	221	1.1
Total	19,923	100.0

measurement in forced expiration was 33½ inches (84 cm.). It is estimated that the average height in men examined for military service in the federal forces during the Civil War was 67½ inches (171 cm.), the average weight was 136 pounds (61.7 Kg.) and the

SPECIALISTS SHARE FEES WITH MEMBERS
IN MILITARY SERVICE

Recognizing the financial sacrifice which members of its organization who have gone into the military service have made, the Indianapolis Ophthalmological and Oto-Laryngological Society has adopted a resolution to the effect that 50 per cent of all fees collected by members from patients who belong to the practice of any member engaged in military service shall be remitted to such members until they return to civil practice; also that on return from military service to civil practice of such members, all patients belonging to their prior practice shall be returned to them by those members who may come into professional contact with such patients. The society also voted to waive all dues and assessments of those who enter the military service and shall consider such members in good standing in that society for the duration of their military service and for the period of one year thereafter.

# FUNCTION OF MEDICAL ADVISORY BOARDS (VI)

Memorandum (1-403) Concerning Relationships of Medical Examinations by Induction and Advisory Boards

It has been brought to the attention of this headquarters that in some of the corps areas registrants are being referred back to local boards and medical advisory boards by the examining and induction stations for additional examinations, including laboratory and x-ray tests, to determine their physical qualifications for induction.

The Medical Advisory Board is an element of the Selective Service System. There is no objection to the use by the Army of the specialists on such boards provided the cost is borne by the Army and it is distinctly understood that such services are rendered to and for the Army. In no event should a registrant be referred back to local boards for an additional examination prior to a final action by the examining and induction stations.

A problem arises, not infrequently, at the examining and induction stations, where the registrant declares that he suffers from epilepsy, asthma or other conditions and yet presents no proof other than his bare statement. Because of lack of acquain-

average chest measurement at expiration was 33½ inches (84 cm.).² In Canada the average height of registrants being examined for military duty is 66¾ inches (169 cm.), the average weight 144¾ pounds (65.5 Kg.) and the average age 22½ years. Comparison of defects with those found in men entering the Canadian army is not possible, owing to the fact that the examination given is primarily a coarse screening as compared to the thorough examination in this country. The principal causes of rejection in Canada are defects of the feet and nose, and hernias.

The administration by the Selective Service System and the Army of what might be considered fairly high physical standards has produced, unqualifiedly, an army with the best physical condition of any comparable sized army in history. In many cases such modern conveniences as automobiles, street cars, elevators and household gadgets have produced flabbiness of muscle and at times paunchiness in the waistline. This, however, is not to be confused with soundness of health, which is determined more by sturdiness of framework, a sound heart, sound lungs and respiratory system, a good digestive system and a stable mental and nervous system. The vast majority of registrants can be hardened by training. This does not mean, however, that we should overlook the warning signaled to us by the discovery of this huge number of hidden defects and diseases in such a large proportion of the registrants.

tance with the registrant, the examiner naturally is uncertain as to the truth or falsity of the statement. If such cases are rejected and returned to the local board, a statement will be made by the examining and induction stations under remarks on the "Report of Physical Examination and Induction" (form 221), giving the basis for the cause of rejection. If the local board or its examining physician has reason to believe that the registrant has falsified such a statement, it may accumulate evidence to justify its belief and return the registrant at a subsequent date, accompanied by such evidence.

LEWIS B. HERSHEY,
Director, Selective Service System.

### PRICE OF RUBBER DRUG SUNDRIES

Manufacturers of rubber drug sundries, including essential hospital and medical items, were requested not to advance prices above those in effect on March 1 in a letter sent to them by Acting Price Administrator John E. Hamm of the Office of Price Administration. The purpose of the request is to keep prices from mounting pending completion of an investigation to determine proper maximum prices for rubber drug sundries. Manufacturers of such items have been allotted a supply of crude rubber and latex by the War Production Board because of the essential nature of the products. It is "essential that prices at all manufacturing and distributing levels reflect only increases which are absolutely necessary for the maintenance of production." Manufacturers will be asked in the near future to submit pertinent cost and earnings data. Manufacturers who intend any change in specifications or quality standards are asked to communicate with the OPA before establishing prices on the altered articles.

## NEW ARMY DENTAL CHIEF

Col. Robert H. Mills, D. C., U. S. Army, has been nominated by the President to be Assistant Surgeon General, to succeed Brig. Gen. Leigh C. Fairbank, D. C., who retired on February 28. Colonel Mills has been chief dental surgeon in the Ninth Corps Area,

^{2.} Medical Department of the United States Army in the World War, Volume XV, Statistics, Part I, Army Anthropology, Charles B. Davenport and Albert G. Love, Washington, D. C., Government Printing Office, 1921.

# ORGANIZATION SECTION

# OFFICIAL NOTES

### INDUSTRIAL HEALTH

Report of a Joint Session Between the Subcommittee on Industrial Health and Medicine, Federal Security Agency, and the Council on Industrial Health, American Medical Association

The Subcommittee on Industrial Health and Medicine of the Federal Security Agency and the Council on Industrial Health met jointly in Chicago on Sunday, January 11. Those present were Stanley J. Seeger, Harvey Bartle, Leverett D. Bristol, Warren F. Draper, Philip Drinker, Leroy U. Gardner, Raymond Hussey, Anthony J. Lanza, Robert T. Legge, Clarence D. Selby, Roscoe L. Sensenich, Olin West, Carl M. Peterson, James A. Crabtree, E. C. Holmblad, Lloyd Noland, George M. Smith, Capt. T. C. Bedwell, J. J. Bloomfield, Lieut. Comdr. Otto L. Burton, J. G. Cunningham, Comdr. Edward H. Cushing, Morris Fishbein, Don Hogate, O. J. Johnson, R. G. Leland, Major Sam F. Seeley, James Sterner and James T. Townsend.

To aid the medical profession in extending and improving its contribution to industrial medical service, medical societies in states and counties have been supplied with a program which will accelerate preparation. Medical and professional schools also have improved and expanded training programs. At present a joint report prepared by the Council on Industrial Health and the American Association of Industrial Physicians and Surgeons on improved industrial health education is in final stages of revision preceding publication and wide distribution to medical educators and organizations.

If industry is to absorb the products of accelerated industrial health education, some concomitant program of training industry in the advantages of medical supervision over workers is indispensable. The principal problem relates to small plants which are, or consider themselves, unable individually to support medical and nursing programs.

The Division of Industrial Hygiene of the U.S. Public Health Service reported that greater effort will be necessary to establish cooperation between bureaus of industrial hygiene and committees on industrial health in the various states. annual budget for industrial hygiene in the U.S. Public Health Service amounts to about \$650,000. Of the one hundred and sixty-one employees in the division, twenty-four are physicians and twenty-three are engineers. Medical and engineering studies have been conducted in government owned ordnance plants. quartermaster corps depots and air corps plants. Recommendations are being put into effect. Fifty-five government owned privately operated ordnance plants are certified for similar study. A reliable test for night vision is being sought, useful in the selection of pilots, truck drivers and night workers under blackout conditions. Other studies are to help in the selection of airplane pilots and bombardiers. Thirty-six states, four cities, two counties and two territories conduct industrial hygiene bureaus requiring a budget of \$1,000,000 for 1942. During the year ended June 30, 1941, 6,084 investigations were made involv-These bu eaus cooperate with the ing 1,509,797 workers. National Committee for the Conservation of Man Power in Industry and attempt to investigate plants having Walsh-Healy contracts. These state bureaus also supply consulting service in relation to dermatoses, nursing and sick absenteeism reports ing. Over 90 per cent of the work of the research section of the Division of Industrial Hygiene deals with toxicity of explosives, solvents, chemicals and metals, the development of instruments for detection and measurement of exposures, high altitude effects, fatigue, and crowded working and living conditions. Miscellaneous activities include the preparation of a

bibliography on mental hygiene in industry, inspection of plant medical services, development of educational pamphlets, radio scripts and films, preparation of technical standards in cooperation with the American Standards Association and advancement of plans for industrial nursing services, mainly of a part time character, to small industrial establishments.

Since adequate personnel is basic to a solution of medical service in industry, the Procurement and Assignment Service is charged with the avoidance of raiding industry of essential physicians and will do so if sufficient numbers of eligible medical people are available to fill military requirements. A reserve officer must immediately make a definite determination whether he is essential for industry or not and submit necessary representations to the adjutant general's office to obtain temporary deferment. Other physicians under 45 who are physically fit must be certified as absolutely essential to industry by the managements which hire them. Physicians in the 45 to 60 groups will be dislocated if certain specialist classifications are called up. In the over 60 group, dislocation is considered unlikely.

As substitutes for eligible and replaceable industrial physicians, reliance should be directed to physically unfit male physicians under 45, male physicians over 45, women physicians and, where possible, qualified laboratory and technical personnel whose employment in appropriate service would release an otherwise essential physician. Everything depends on the willingness of physicians on self analysis supplemented by advice from referees in counties, districts, states and corps areas to determine the physician's own greatest sphere of usefulness. Instructions will soon be issued enabling each physician to aline himself with service most consistent with his individual ability and physical equipment. Every physician will receive a certified serial number of his enrolment and an identifying button that only he will be authorized to wear.

Commissions on inactive status are under consideration in the U. S. Public Health Service, to be assigned to needed public health officers, physicians and sanitary engineers in order to have available means for coping with disaster and epidemics.

In order to acquaint the small manufacturers with the benefits of industrial health, it was agreed that some agency for public information be created. It was suggested that failure in this regard might logically lead to compulsory forms of industrial medical service. Specific suggestions included a presidential proclamation, followed by a broad but intensive campaign through newspaper and magazine articles, and organized promotion through local manufacturers' associations, chambers of commerce, civic organizations, medical publicity bureaus and every other accessible avenue. To implement these suggestions it was variously recommended:

- (a) That a small conference be called soon in Washington to canvass the possibilities for better coordination in industrial health programs having particular reference to current plans in the Office for Civilian Defense and for creating an agency for public information.
- (b) That the facilities of the Federal Security Agency be used to gain the same end.
- (c) That the Subcommittee on Industrial Health and Medicine to enabled to employ necessary publicity talent.
- enabled to employ necessary publicity talent.

  (d) That the practicing physician can and must be relied on to provide medical service for small industry and that all programs of publicity and activities both in industrial hygiene and in civilian defense should bear this fact strongly in mind.

Although no precise action was taken, it seemed to be the general opinion that the chairman of the subcommittee inquire further into possibilities and that, if it seemed in the interests of the worker and industry, an agency for the dissemination of industrial health information be created. It seemed also to be the consensus that, if created, this agency should be directly attached to the subcommittee.

# MEDICAL LEGISLATION

# DISTRICT OF COLUMBIA

Bill Introduced.—S. 2394, introduced by Senator Bilbo, Mississippi, provides that the Commissioners of the District of Columbia shall cause to be set up facilities and shall appoint such personnel as they may deem necessary for the scientific determination of the degree of intoxication of motor vehicle drivers. The bill also provides for the admission in evidence of the results of the tests.

# MEDICAL BILLS IN CONGRESS

Changes in Status.—H. R. 6730 has passed the House, a bill to protect the public health by regulating the mail order business in dentures. A companion bill, S. 2371, introduced by Senator Tunnell, Delaware, is pending in the Senate Committee on Interstate Commerce.

Bills Introduced.—S. J. Res. 140, introduced by Senator Glass, Virginia, proposes to grant permission to Hugh S. Cumming, Surgeon General (retired) of the United States Public Health Service, to accept certain decorations bestowed on him by the republics of Colombia, Haiti and Chile. S. 2405, introduced by Senator George, Georgia, proposes to discharge more effectively the obligations of the United States under certain treaties relating to the manufacture and distribution of narcotic drugs, by providing, through a licensure system, for domestic control of the

production and distribution of the opium poppy and its products. S. 2412, introduced by Senator Pepper, Florida, proposes to provide benefits, including medical care, for the injury, disability, death or enemy detention of civilians and for the prevention and relief of civilian distress arising out of the present war.

# STATE MEDICAL LEGISLATION Virginia

Bill Introduced.—S. 141 proposes, among other things, to authorize the state hospital board to establish and maintain outpatient mental hygiene clinics, to establish and maintain mental health programs and services, and to initiate and direct the development of long range programs and plans with respect to mental hygiene and hospital services provided by the state.

Bill Passed.—S. 178, to amend the insurance law, proposes to authorize corporations issuing motor vehicle liability insurance to add endorsements thereto for the issuance of medical, surgical, ambulance or hospital payments to the insured.

Bill Enacted.—H. 171 authorizes the boards of supervisors of certain counties in the state to establish a retirement system for the employees of such counties and to employ such actuarial, medical and legal aid and assistance in establishing and administering such system as it may deem necessary.

# WOMAN'S AUXILIARY

### WINNERS IN THE HYGEIA CONTEST

The American Medical Association offered \$400 in cash prizes to the state and county auxiliaries which obtained the largest number of subscription credits to *Hygeia*. The contest covered the period from Sept. 1, 1941 to Jan. 31, 1942.

Cash prizes were awarded as follows:

Group 1. Auxiliaries with a membership of from one to thirteen:

First prize, \$40, to Perry County, Mo., Mrs. B. T. Koon, president, Perryville, Mo.

Second prize, §25, to Cass County, Mo., Mrs. David S. Long, Hygeia chairman, Harrisonville, Mo.

Third prize, \$15. to Childress-Collingsworth-Hall counties, Texas, Mrs. J. A. Odom, Hygeia chairman, Memphis, Texas.

Group 2. Auxiliaries with a membership of from fourteen to twenty-three:

First prize, \$40, to Chelan County, Wash., Mrs. R. S. Mitchell, Hygeia chairman. Wenatchee, Wash.

Second prize, \$25, to Cowlitz County, Wash., Mrs. C. J. Sells, Hygeia chairman, Longview, Wash.

Third prize, \$15, to Twin Falls County, Idaho, Mrs. C. B. Beymer, Hygeia chairman, Twin Falls, Idaho.

Group 3. Auxiliaries with a membership of from twenty-four to forty-two:

First prize, \$40, to Walla Walla Valley, Wash., Mrs. J. T. Rooks, Hygeia chairman, Walla Walla, Wash.

Second prize, \$25, to Bowie-Miller counties, Texas-Ark., Mrs. Ralph Cross, Hygeia chairman, Texarkana, Texas.

Third prize, \$15, to Vermilion County, Ill., Mrs. C. L. Bennett, Hygeia chairman, Danville, Ill.

Group 4. Auxiliaries with a membership of from forty-three to six hundred:

First prize, \$40, to Westmoreland County, Pa., Mrs. I. J. Ober, Hygeia chairman, Greensburg, Pa.

Second prize, \$25, to Buchanan County, Mo., Mrs. Charles H. Werner, Hygeia chairman, St. Joseph, Mo.

Third prize, \$15, to Cook County, Ill., Mrs. Clyde R. Landis, Hygeia chairman, Chicago.

State winners:

First prize, \$40, to state of Washington, Mrs. Delmar F. Bice, Hygeia chairman, Yakima, Wash.

Second prize, \$25, to state of Illinois, Mrs. E. M. Egan, Hygeia chairman, Chicago.

For the third prize, \$15, no state qualified by sending in their quota of subscriptions.

Honorable Mention was given to the following counties:

Santa Barbara County, Calif., Mrs. H. E. Henderson, chairman, Santa Barbara.

Arapahoe County, Colo., Mrs. H. B. Catron, chairman, Englewood.

Richmond County, Ga., Mrs. E. S. Sanderson, chairman, Augusta.

Bannock-Bingham County, Idaho, Mrs. W. W. Beck, chairman, Blackfoot.

Rock Island County, Ill., Mrs. Samuel Brown, chairman, East Moline.

Wayne County, Mich., Mrs. F. T. McCormick, chairman, Detroit.

Muskogee County, Okla., Mrs. J. T. Woodburn, Muskogee. Mercer County, Pa., Mrs. Paul T. Hope, chairman, Mercer.

Spartanburg County, S. C., Mrs. W. T. Hendrix, chairman, Spartanburg.

Snohomish County, Wash., Mrs. Lewis J. Ferrell, chairman, Everett.

Raleigh County, W. Va., Mrs. A. C. Echols, chairman, Prince. Brown-Kewaunee-Door counties, Wis., Mrs. L. D. Quigley, chairman, Green Bay.

Other counties that have reached or exceeded their quota were Kern County, Calif.; Monterey-San Benito County, Calif.; Riverside County, Calif.; Duval County, Fla.; Sangamon County, Ill.; Dubuque County, Iowa; Shawnee County, Kan.; Renville County, Minn.; Greene County, Mo.; Jackson County, Mo.; Montgomery County, N. Y.; Pottawatomic County, Okla.; Marion-Polk County, Ore.; Berks County, Pa.; Bucks County, Pa.; Crawford County, Pa.; Mifflin County, Pa.; Clark County, Wash.; King County, Wash.; Pierce County, Wash.; Whatcom County, Wash.; Yakima County, Wash.; Kenosha County, Wis.; Racine County, Wis.; Rock County, Wis.

This year's contest resulted in eight thousand one hundred and seventy-four subscriptions.

To the Hygeia chairmen, officers and members of the various county and state woman's auxiliaries who have assisted in making this contest a success, Mrs. George R. Dillinger, national Hygeia chairman, and the circulation manager of Hygeia express appreciation.

# Medical News

(Physicians will confer a favor by sending for THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVI-TIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ALABAMA

New Health Officer for Birmingham.-Dr. George A. Denison, acting health officer of Birmingham and Jefferson County since September, has been appointed health officer. effective February 25. Dr. Denison graduated at Baylor University College of Medicine, Dallas, Texas. He has been connected with the Jefferson County health unit since 1921. From 1931 until his appointment as acting health officer he served as director of the bureau of laboratories.

State Medical Meeting in Montgomery. - The annual session of the Medical Association of the State of Alabama will be held at the Whitley Hotel, Montgomery, April 21-23, under the presidency of Dr. James M. Mason, Birmingham, and with the Montgomery County Medical Society acting as host. Included among the speakers will be:

Dr. Ralph McBurney, Tuscaloosa, A Clinical Evaluation of the Erythrocyte Sedimentation Rate.
Dr. Henry B. Burdeshaw, Dothan, Blood and Blood Substitutes in the Treatment of Hemorrhage and Shock.
Drs. Frank A. Kay, James D. Smith and Norman H. Reim, Tuscaloosa, Electric Shock Treatment in Psychiatric Disorders.
Dr. French H. Craddock Jr., Sylacauga, Intravenous Alcohol in Postoperative Analgesia.
Dr. Ralph M. Clements, Tuscaloosa, A Newer Treatment for Perennial Hay Fever.

One general session will be addressed by out of state physicians, Drs. Edward L. Compere, Chicago, speaking on "The Treatment of Compound Fractures" and Frank E. Adair, New York, "Carcinoma of the Breast." Part of another general York, "Carcinoma of the Breast." Part of another general session will be devoted to a panel discussion on poliomyelitis by Drs. Daniel G. Gill, Montgomery, epidemiology; Albert E. Casey, New Orleans, pathology; Carl A. Grote, Huntsville, the acute state, and H. Earle Conwell, Birmingham, muscular rehabilitation. Dr. Harvey B. Stone, Baltimore, will deliver the Jerome Cochran Lecture Wednesday morning on "Biliary Diseases as Seen by the Surgeon."

### CONNECTICUT

Section for Industrial Physicians.—With the February issue, Connecticut Industry, official organ of the Manufacturers Association of Connecticut, will conduct a regular column to promote an exchange of ideas among industrial physicians to help further the adoption of improved industrial medical procedures in Connecticut industries.

Grant for Research on Child Development.—The Carnegie Corporation of New York has given a grant of \$10,000 to support a research program at the Clinic of Child Development at Yale University School of Medicine, New Haven. The clinic, which was founded in 1911 by Dr. Arnold L. Gesell, its present director, is investigating the mental growth of normal infants and devising clinical methods for the early diagnosis of developmental defects and deviations. Staffed by pediatricians and psychologists, it maintains a diagnostic and advisory service for infants and preschool children, a guidance nursery, a photographic research library and special facilities for one way vision observation and for systemic studies of normal and abnormal child behavior.

# DISTRICT OF COLUMBIA

Biochemist Receives Hillebrand Award.—Michael X. Sullivan, Ph.D., since 1931 director of the Chemo-Medical Research Institute, Georgetown University School of Medicine, Washington, was presented with the Hillebrand Award of the Chemical Society of Washington at the annual dinner, March 12, for his work on the "Sulfur-Containing Substances of the Body." Dr. Sullivan received his Ph.D. at Brown University Providence R. L. in 1903. He served as fertility of the Body." Dr. Sullivan received his Ph.D. at Brown University, Providence, R. I., in 1903. He served as fertility expert at the Bureau of Soils, U. S. Department of Agriculture, from 1907 to 1915 and as biochemist to the U. S. Public Health Service from 1915 to 1931. He was president of the Washington Section of the American Chemical Society in 1914.

Hospital Meeting.-The fifth annual meeting of the Medirospital Meeting.—The fifth annual meeting of the Medical Society of St. Elizabeths Hospital, Washington, will be addressed, April 18, by Dr. Lucille Dooley, Washington, on "Psychoanalytical Concepts of Manic Depressive Psychosis"; Nathan Bryllion Fagin, Ph.D., Baltimore, "The Influence of Psychoanalysis on Modern Literature"; Dr. Uno H. Helgesrsychoanalysis on Modern Literature, Dr. Ono H. Heigesson, Commander, U. S. Naval Reserve, Washington, "Acute Traumatic Neuroses Following Combat," and Dr. Winfred Overholser Washington. Elmer Louis Kayser, Ph.D., Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washington, Washingt ington, will be the speaker at the annual dinner.

### FLORIDA

State Medical Meeting in Hollywood April 13-15.-The sixty-ninth annual meeting of the Florida Medical Association will be held at the Hollywood Beach Hotel, Hollywood, April 13-15, under the presidency of Dr. Walter C. Jones Jr., Miami. The Palm Beach County Medical Society will be host at the session. Included among the speakers will be:

Dr. Lauren M. Sompayrac, Lieutenant, U. S. Navy, Naval Hospital, Jacksonville, The Dermatologist in the Navy. Dr. James A. Bradley, St. Petersburg, Bed Rest in Coronary Throm-

bosis.
Dr. Nathan S. Rubin, Major, U. S. Army, Station Hospital, Panama City, Some Medical Problems of Flight.
Dr. Daniel C. Elkin, Atlanta, Ga., Injuries of the Chest.
Dr. Harold G. Nix, Tampa, Use of Vitamin K in Obstetrics.
Drs. Wilfred McL. Shaw and William Tracy Haverfield, Jacksonville, Roentgen Aids in the Diagnosis and Localization of Intracranial Conditions.
Dr. Warren W. Quillian, Coral Gables, Pyurias in Childhood: Their Significance and Treatment.

Other groups meeting at this time include the Florida section of the American College of Physicians, the Florida Radiological Society, the Florida Pediatric Society and the Florida Association of Dermatology and Syphilology. Dr. Cornelius F. Holton, Savannah, Ga., will discuss "Industrial Surgery" before the Florida Association of Industrial Surgeons, and Dr. Frank E. Burch, St. Paul, "Cataracts" and "Glaucoma" before the Florida Society of Ophthalmology and Otolaryngology. The sixteenth annual meeting of the woman's auxiliary to the state medical association will be held, April 13-15.

#### ILLINOIS

Change in Hospital Superintendents. - Dr. Joseph H. Ellingsworth, Geneseo, has been appointed managing officer of the Peoria State Hospital, succeeding Dr. Philip Waters, who has assumed a similar position at the East Moline State Hospital. Dr. Waters fills the vacancy that occurred when Dr. Joseph A. Campbell resigned.

Coordinators Named to Protect Water Supply. - A group of coordinators from ten emergency water corps zones has been appointed to work toward the protection and conservation of existing water supply systems in more than is him. dred down state municipalities. A meeting was held in Springfield, March 12, under the auspices of the state department of health to map out regulations and programs for local application.

### Chicago

Society News.—Dr. Frederic Schreiber, Detroit, discussed "Clinical Relationship Between Cerebral Anoxia and Anesthesia" before the Chicago Society of Anesthetists, February 25.—The Chicago Laryngological and Otological Society was 25.—The Chicago Laryngological and Otological Society was addressed, March 2, by Drs. John H. Gilmore on "X-Ray Studies in Mastoid Pathology"; Oliver McGillicuddy, Lausing, Mich., "Encephalomeningoceles in the Nasal Cavities," and Mauritius Tamari, "Histopathologic Changes of the Temporal Bone in Paget's Disease."—The Illinois Psychiatric Society, March 5, was addressed by Drs. Milton Rosenbaum, Cincinnati, "Adaptation of the Central Nervous System to Alcohol"; James Clark Moloney, Detroit, "Unconscious Motivations for the Choice of Employment," and Maxwell Gitelton, "The Critical Moment in Psychotherapy."—The North Shore Branch of the Choice of Employment," and Maxwell Gitelson, "The Critical Moment in Psychotherapy."—The North Shore Branch of the Chicago Medical Society will be addressed at the Sovereign Hotel, April 7, by Dr. Bayard T. Horton, Rochester, Minn, on "Headaches: Clinical Types and Treatment." The North Side Branch was addressed, March 5, by Drs. Ernest H. Falconer, San Francisco, on "Hodgkin's Disease, with Special Reference to Skeletal and Bone Marrow Involvement" and Edward L. Bortz, Philadelphia, "Geriatrics: A New Light on Old Folks."

### LOUISIANA

State Medical Meeting.—The Louisiana State Medical Society will hold its annual meeting in New Orleans, April 27-29, under the presidency of Dr. Paul King Rand, Alexandria. Among the out of state speakers will be Drs. Jacob Arnold Bargen, Rochester, Minn., on "The Use of Sulfonamide Derivatives in the Digestive Tract"; Charles T. Stone, Galveston, Texas, "The Future of the Coronary Thrombosis Patient"; Adolph B. Loveman, Louisville, "Some Cutaneous Manifestations of Systemic Disorders," and Roy F. Baskett, Texarkana,

Ark., "The Use of the Various Insulins in the Treatment of Diabetes Mellitus." The program will include the following local physicians:

Dr. Frank L. Loria, New Orleans, Abdominothoracic Gunshot Injuries.
Drs. Bjarne Pearson and Manuel M. Garcia, New Orleans, Spread and Metastasis in Carcinoma of the Cervix Uteri.
Drs. Daniel N. Silverman, Robert A. Katz and Andrew V. Friedrichs, New Orleans, The Increasing Incidence and Complications of Chronic Bacillary Dysentery.
Dr. Charles R. Gowen, Shreveport, The Rational Management of Bronchicctasis.
Drs. Louis S. Charbonnet Jr. and George F. Schroeder, New Orleans, The Physiologic Conception of Tissue Resistance in the Surgical Diabetic.

One session will be devoted to a symposium on "Health Protection of Civilians in the Present War" to cover the sub-jects of nutrition, emergency water supply and sewage disposal, potential epidemics in Louisiana, protection by immunization and provisions for children.

### MICHIGAN

New Director of Epidemiology, — Dr. Thaddeus M. Koppa, assistant director of epidemiology, Michigan State Department of Health, Lansing, has been appointed director, newspapers report. He succeeds Dr. Wallace M. Chapman, who has resigned to enter private practice in California, Dr. Chapman was named to the position last year.

Health Center Opened .- The new Delta County Health Center ? Escanaba was opened formally to the public on February 6. The center is in a former school building, which was remodeled to meet the needs for offices of the county school commissioner and for the health unit of the county. are six rooms, a library and a meeting room with a seating capacity of between seventy-five to one hundred persons. Dr. Fred O. Tonney, Escanaba, is director of the county health unit.

### MINNESOTA

Meeting of Radiologists. - The spring meeting of the Minnesota Radiological Society was held at the Mayo Foundation House, Rochester, March 28. The speakers included the following Rochester physicians:

Drs. William C. MacCarty Jr. and Byrl R. Kirklin, Radiologic and Pathologic Studies of Prepyloric Ulcer.
Drs. Frank J. Rigos, Oak Terrace, and John D. Camp, Primary Tumors of the Rills.
Drs. James T. Shelden and Walter C. Popp, X-Ray Treatment of Erysipelas.

Erysipelas.
Drs. Robert D. Moreton and Eugene T. Leddy, Dysgerminomas with
Reference to Radiosensitivity.
Drs. George R. Dochat and Malcolm B. Dockerty, Prognosis in Carcinoma of the Stomach in Relationship to Duke's Type and Broder's
Grade of Malignancy.

At the evening session Dr. Patrick P. T. Wu, Tsang, Peiping, China, gave an address entitled "China Speaks."

### MISSOURI

State Meeting in Kansas City April 27-29 .- The annual session of the Missouri State Medical Association will be held in the Municipal Auditorium, Kansas City, April 27-29, under the presidency of Dr. Robert B. Denny, Creve Coeur. Out of state speakers will include:

f state speakers will include:

Dr. Karl W. Brimmer, Washington, D. C., Faith, Hope and Cure-Alls.

Dr. Waltman Walters, Rochester, Minn., Gastrie Ulcer.

Dr. Willard R. Cooke, Galveston, Texas, Three Important Advances in
Obstetric Therapy: Analysesia, Intravenous Ergotrate in Third State
of Labor, Magnesium Sulfate in Eclampsia.

Dr. George R. Herrmann, Galveston, Some Medical Emergencies and
Their Management.

Dr. Russell L. Haden, Cleveland, The Differentiation of Obscure
Anemia.

Dr. Cobb Pilcher, Nashville, Tenn., Neurosurgery in the War.

Dr. Joe Vincent Meigs, Boston, Endometriosis.

Dr. Arthur Furdy Stout, New York, Clinical Diagnosis of Cancer of
the Breast.

Dr. Arthur Purdy Stout, New York, Clinical Diagnosis of Cancer of the Breast.

Dr. Robert Elman, St. Louis, The Correction of Acute Protein Deficiency in the Treatment of Surgical Shock, Severe Hemorrhage and Burns.

Dr. Hobart A. Reimann, Philadelphia, Practical Aspects of Newly Discovered Forms of Pneumonia.

Dr. Harris B. Shumac alue of Sympathectomy in the Treatment of ders.

Dr. Irvine H. Page, and Its Experimental Treatment.

Dr. Raymond O. Muether, St. Louis, Blood Ranks

Treatment.

Dr. Raymond O. Muether, St. Louis, Blood Banks.

Dr. Oliver Cope, Boston, Hyperthyroidism.

Dr. William B. Kountz, St. Louis, The Recognition and Treatment of Degenerative Health Disease.

Donald E. Cummings, B.S., Denver, Industrial Health.

The annual banquet, Monday evening, will be addressed by Dr. George F. Lull, colonel, M. C., U. S. Army, Washington, D. C., on "The Medical Officer in Our Wartime Army." Dr. Willard R. Cooke will also address the maternal welfare luncheon meeting.

### NEW HAMPSHIRE

Changes in Board of Health.-Dr. Ralph E. Miller, associate professor of pathology and assistant dean of Dartmouth Medical College, Hanover, has been chosen president of the state board of health to succeed Dr. George C. Wilkins, Manchester, who retired after serving in this capacity for many years. The latter had been a member since 1915. Dr. Montfort Haslam, Antrim, has been named a member of the board, succeeding Dr. James W. Jameson, Concord, a member since 1933, who also retired.

### NEW JERSEY

Health Officers Association.—Mr. W. Stanley Applegate, Asbury Park, was elected president of the New Jersey Health Officers' Association, succeeding Mr. Harold W. Hager, Oceau City; Mr. Hugh B. Martin, Englewood, was elected vice president and Mr. William C. Blake, Princeton, reelected secretarytreasurer.

### NEW YORK

Public Sunday Medical Lectures .- As a public service and a contribution to the war effort, the University of Buffalo School of Medicine, Buffalo, recently conducted a series of five public lectures on "The Care of Your Health During the War." The lectures, which were given in the amphitheater of the medical school, started on February 8. The medical school gave a course of public lectures last year also as a community service.

Fifty Years as Health Officer.—Dr. Morris W. Cowden, Gerry, Chautauqua County, was recently presented with a testimonial letter by Dr. Edward S. Godfrey Jr., state health commissioner, "in recognition of fifty years of faithful and continuous service as health officer." Dr. Cowden graduated at the University of Buffalo School of Medicine in 1890. He had been practicing in Gerry for two years when he was named health officer. Dr. Cowden has retired from active practice but still carries on as local health officer.

Maternal and Child Welfare Teaching Day.-A group of local agencies sponsored a regional maternal and child welfare teaching day at the Rochester General Hospital, Rochester, April 1. Included among the speakers were:

Drs. Donald H. Kariher and Howard A. Spindler, Rochester, The Role of the Blood Rh Factor in Transfusion Reactions and Erythroblastosis Fetalis.

Dr. John M. MacMillan. Rochester, Tuberculosis and Pregnancy.

Dr. Herbert C. Soule, Rochester, The Care of the Premature Infant.

Dr. Charles S. Lakeman, Rochester, The Diagnosis and Treatment of Thrombophlebitis.

Dr. Clarence Arthur, Files Bestian Rochester, The Diagnosis and Treatment of Dr. Clarence Arthur, Files Bestian Rochester, The Diagnosis and Treatment of Dr. Clarence Arthur, Files Bestian Rochester, The Diagnosis and Treatment of Dr. Clarence Arthur, Files Bestian Rochester, The Diagnosis and Treatment of Dr. Clarence Arthur, Files Bestian Rochester, The Rochester, The Diagnosis and Treatment of Dr. Clarence Arthur, Files Bestian Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Rochester, The Roch Clarence Arthur Elden, Rochester, The Treatment of Habitual

Dr. Ferdinand J. Schoeneck, Syracuse, Demonstration of Case Study.

Dr. Harvey B. Matthews, Brooklyn, clinical professor of obstetrics and gynecology, Long Island College of Medicine, addressed the evening session at the Rochester Academy of Medicine on "Prolonged Labor: Etiology and Management."

### New York City

The Janeway Lectures. - The annual Edward Gamaliel Janeway Lectures at Mount Sinai Hospital will be delivered by Michael Heidelberger, Ph.D., associate professor of bio-chemistry, Columbia University College of Physicians and Surgeons, April 7 and April 10. His subject will be "Newer Concepts of Infection and Immunity and Chemistry's Part in Their Development."

Physician Wins Town Hall Essay Contest.-Dr. Jacob Physician wins fown Half Essay Contest.—Dr. Jacob Sobel, attending pediatrician at the Hospital for Joint Diseases and Beth David Hospital and director of pediatrics at Gouverneur Hospital, recently won first prize of \$250 in the national essay contest sponsored by Town Hall in connection with its radio forum, America's Town Meeting of the Air. The subject was "What Must We Do to Improve the Health and Well-Being of the American People?" Dr. Sobel graduated at Columbia University College of Physicians and Surgeons in at Columbia University College of Physicians and Surgeons in 1895.

Dr. Bernecker New Commissioner of Hospitals.-Dr. Edward M. Bernecker, general medical superintendent for the city department of hospitals, has been named commissioner of hospitals to succeed Dr. Willard C. Rappleye, resigned. Born in Seward, Neb., March 13, 1892, Dr. Bernecker graduated at the Halmemann Medical College and Hospital in Chicago in 1915. He served his internship at Metropolitan Hospital. In 1917 he entered the U. S. Army and was appointed a surgeon in the air service. According to the New York Times he was stationed in the second A. E. F. training section at Tours in France and later was appointed a battalion surgeon in the second division. After the war he returned to Metropolitan

Hospital as deputy superintendent, becoming superintendent in 1930. In 1935 he became deputy superintendent of the Kings County Hospital, leaving the position in 1937 to become general medical superintendent for the department of hospitals.

Professional Service Building Dedicated .- The Hospital for Joint Diseases February 7 dedicated its new professional service building, the Melanie Faith Polachek Cournand Memorial. The building is seven stories high and contains professional facilities and services to serve both outpatients and inpatients. The first floor contains emergency room, admitting offices for ward patients, medical emergency field unit and the central offices of the social service department. The physical therapy department is on the second floor and the radiology service on the third. The Women's Division, including facilities for about two hundred and fifty women volunteers, sewing rooms for hospital linens, patients' circulating library and reading room and the occupational therapy department, is on the fourth floor. The fifth floor contains a blood bank, bacteriology laboratory and an auditorium; the sixth, laboratories for surgical pathology, clinical pathology and research; the seventh, animal operating rooms. The various units were financed by individual donors.

Physicians Honored by Polyclinic Hospital .- Exercises were held at the Polyclinic Medical School and Hospital, February 10, to honor twenty-three physicians and surgeons "deemed to have contributed most toward the creation" of the hospital. Portraits of the physicians were unveiled. Dr. Orrin S. Wightman, formerly president of the state medical society, presented the portraits to the hospital and Dr. Joseph F. McCarthy, president of the faculty, accepted the gift, which is said to represent graphic portrayal of the sixty-one year history of Polyclinic Hospital. The complete list of those whose portraits appear in the gallery follows: Drs. Willard Parker, Paul F. Munde, Andrew R. Robinson, Landon Carter Gray, Abraham Jacobi, Walter Gill Wylie, Arpad G. Gerster, Virgil P. Gibney, D. Bryson Delavan, Luther Emmett Holt, Bernard Sachs, James P. Tuttle, James Riddle Goffe, William Rice Pryor, Robert C. Myles, Frederick Whiting, Charles Gilmore Kerley, John A. Bodine, Royal Whitman, Orrin S. Wightman, Frederick H. Dillingham, John Allen Wyeth and Harry Marion. Frederick H. Dillingham, John Allen Wyeth and Harry Marion Sims. With the exception of seven men, Drs. Delavan, Sachs, Whiting, Kerley, Whitman, Wightman and Dillingham, the honored men are dead.

### ohlo

Regional Meeting on Anesthesia.—The American Society of Anesthetists, Inc., the Ohio State Section of the national society and the Ohio Society of Anesthetists will meet at the Neil House, Columbus, April 30, for the following program:

Dr. Norris E. Lenahan, Columbus, Intravenous Anesthesia.
Dr. Harold D. Green, Cleveland, Shock.
Dr. James H. Bennett, Cincinnati, The Anesthetic Management for Drainage of Abscess of the Submandibular Space.
Dr. Kenneth C. McCarthy, Toledo, Casualty Anesthesia in England.
Drs. John K. Potter and Reynold M. Crane, East Cleveland, Anesthesia in Thyroid Surgery.
Dr. Abe L. Schwartz, Cincinnati, The Use of Picrotoxin in Barbiturate Poisoning.

New Professor of Dermatology and Syphilology.-Dr. New Professor of Dermatology and Syphilology.—Dr. Harry L. Claassen, assistant professor of dermatology and syphilology at the University of Cincinnati College of Medicine, has been promoted to professor, effective March 3. He fills the vacancy caused by the death of Dr. Elmore B. Tauber, Jan. 23, 1941. Dr. Claassen has been assistant professor and acting head of the department. With his promotion Dr. Claassen also became director of the service of dermatology and syphilology in the Cincinnati General Hospital. He graduated at ology in the Cincinnati General Hospital. He graduated at Cincinnati in 1918 and has been a member of the staff since 1922.

Annual Postgraduate Day .- The Mahoning County Medical Society will observe its annual postgraduate day at the Pick-Ohio Hotel, Youngstown, April 15, with the following program:

Dr. Jacob R. Buchbinder, Acute Diffuse Peritonitis: Pitfalls in Diagnosis and Some More Recent Concepts of Treatment; Present Status of Surgery for Duodenal Ulcer.

Dr. Harry Culver, Traumatic Conditions of the Male Urethra and Bladder; Nonspecific Upper Urinary Tract Infections.

Dr. Paul S. Rhoads, Clinical Feature and Treatment of Pneumonia, 1941-1942 Season; Hemolytic Streptococcus Infections of the Throat and Nose: Their Importance as a Clinical and Public Health Problem.

Problem. rrobiem. r. George H. Gardner, Pelvic Endometriosis—An Increasingly Fre-quent Clinical Problem; Management of the Barren Marriage.

All the speakers are members of the faculty of Northwestern University Medical School, Chicago.

### OREGON

Annual Meeting of Surgeons.—The annual session of the Spokane Surgical Society will be held at the Davenport Hotel, Spokane, April 25, with Dr. Richard B. Cattell, Boston, as the guest speaker. The titles of Dr. Cattell's lectures will be "Diseases of the Thyroid Gland," "Common Duct Obstructions" and "Selection of Operation for Carcinoma of Colon and Rectum" Rectum."

### WISCONSIN

New Tuberculosis Officers.-Dr. George C. Owen, Oshkosh, was recently elected president of the Wisconsin Trudeau Society; Dr. Einar R. Daniels, Milwaukee, vice president, and Dr. John D. Steele Jr., Milwaukee, secretary.

Dearholt Fund to be Continued.—The Dearholt Memorial Fund, established by the late Dr. Hoyt E. Dearholt, Milwaukee, former executive secretary of the Wisconsin Anti-Tuberculosis Association, will be maintained permanently, it has been announced. Tuberculosis institutes at Marquette University School of Medicine, Milwaukee, and the University of Wisconsin Medical School, Madison, as well as at sanatoriums throughout the state, are made possible by the fund. Dr. Dearholt started the fund by making deductions from his salary as secretary of the association.

Physician Honored.-More than a hundred former patients of Dr. George V. I. Brown gave a dinner in his honor in Milwaukee, February 15. Dr. Brown, who is 80 years of age, recently retired from active practice and is doing consultation work only. He was professor of oral and plastic surgery at the University of Wisconsin Medical School, Madison, from 1920 until he retired as emeritus professor in 1937. During World War I he was called to the Office of the Surgeon General, Washington, as chief of the plastic and oral service at Walter Reed Hospital. Under the orders of General Gorgas he established a school for training men in plastic surgery at Fort Oglethorpe, Ga., before they went overseas.

### GENERAL

Blood Plasma Package Wins Award.—Sharp and Dohme, Inc., was given the top award in the drugs, chemicals and drug sundries classification of the eleventh annual All-America Package Competition sponsored by Modern Packaging Magazine recently for a package developed to supply dehydrated human blood in a portable, practical and stable form for use in war and civilian practice. The package is supplied as a complete unit with the exception of the intravenous outfit, which is supplied in a separate package and is always included with each order unless otherwise specified.

Grants for Research.-William R. Warner & Company, Inc., New York, has announced grants for medical research as follows:

The Long Island College of Medicine, Brooklyn, a two year fellowship for postgraduate study in the department of radiology.

New York University College of Medicine, New York, for the study of the conjugation of the sulfonamide drugs. This study will be carried out in the pneumonia service of the Harlem Hospital.

Northwestern University Medical School, Chicago, for the study of totic factors as observed in the department of dermatology investigating the possibilities of detoxifying therapeutic agents used in the practice of dermatology.

Washingtonian Hospital, Boston, for the study of alcoholism involving the blood chemistry and psychometric findings of cases while under the influence of alcohol and during recovery.

Changes in Status of Licensure.-The California State Board of Medical Examiners reports the following:

Dr. Howard D. Mayers, Fall River Mills, license revoked, Oct. 22, 1941, for habitual intemperance.

Dr. Frederick William Riley, Los Gatos, license revoked Oct. 23, 1941, charged with aiding and abetting an unlicensed individual, i. e. William F. Hoque, who operated the Valley Rest Home, Los Gatos, where patients were treated with an escharotic paste as an asserted "cure" of cancer.

onneer.

Dr. Oscar Charles Long, Brawley, license restored October 21; he was placed on five years' probation without narcotic privileges and ordered to report at each Los Angeles meeting.

The Medical Grievance Committee of the New York State Education Department announces the following action:

Dr. Archie Max Fisher, Spencer, N. Y., license revoked in September 1941 for drug addiction.

Director of Planned Parenthood Federation Appointed —Dr. Claude C. Pierce, until March I medical director of the U. S. Public Health Service in charge of district number I, New York, has been appointed national medical director of the Planned Parenthood Federation of America, Inc., formerly the property of the Post of Federation of America, Inc., formerly the property of the Post of Federation of America, Inc., formerly the property of the Post of Federation of America, Inc., formerly the property of the Post of Federation of America, Inc., formerly the property of the Post of Federation of America, Inc., formerly the property of the Post of Federation of America, Inc., formerly the Post of Federation of America, Inc., formerly the Post of Federation of America, Inc., formerly the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of the Post of th known as the Birth Control Federation of America, Inc., according to an announcement from the society's headquarters in New York. Dr. Pierce graduated at Chattanooga Medical College in 1898. In 1900 he joined the public health service.

In 1918 an act passed by congress creating the United States Interdepartmental Social Hygiene Board became a law. This included the establishment of a division of venereal diseases in the U. S. Public Health Service. Dr. Pierce organized and directed this division as assistant surgeon general in charge for four years, serving also during that time as a member of the Interdepartmental Social Hygiene Board. When the newly created position of district director was established in 1922 he was assigned to Chicago in charge of district number 3. Later he went to Mexico and Cuba to confer with government authorities on sanitary conditions and quarantine restrictions. In 1926 he was assigned to Washington as assistant surgeon general in charge of personnel and accounts. Subsequently he went to Europe for supervision of medical inspection of aliens. In 1937 he was relieved of duty in Europe and assigned as director of public health district number 1 with headquarters in New York City.

Educational Program on Diabetes. - The Metropolitan Life Insurance Company has been conducting an educational program on diabetes during the past year. More than one and one-half million pamphlets were distributed to the public and to interested physicians. New publications for the public were printed. Exhibits, conferences and correspondence were used to interest health officers and health departments in diabetes control. About one hundred and ten meetings have been addressed by the company's examiners or other physicians. A number of state medical societies actively participated in the program. The objectives of this program are a wider recognition of incipient symptoms, the early detection of disease by medical examination and urinalysis, a closer working relationship between the potential or actual diabetic patient and the private medical practitioner, and more thorough and adequate treatment with postponement of mortality, together with more widespread information about the possible preventive factors.

American Pediatric Society. - The fifty-fourth annual meeting of the American Pediatric Society will be held at Skytop, Pa., April 30-May 2. There will be a symposium on children in the civilian defense program and one on the control of communicable diseases in defense areas and among civilian populations. Among the speakers will be:

Drs. Clement A. Smith and Eugene Kaplan, Boston, Adjustment of Blood Oxygen Levels in Neonatal Life.

Dr. Henry F. Helmholtz, Rochester, Minn., Experimental Studies in Treatment of Urinary Infections.

Dr. Lewis K. Sweet, Washington, D. C., Chemotherapy in Acute Gonococcal Conjunctivitis.

Drs. Luther Emmett Holt Jr. and Victor A. Najjar, Baltimore, A Simple Method for the Laboratory Diagnosis of Deficiencies of Thiamine, Riboflavin and Nicotinic Acid.

Dr. Harold L. Higgins, Boston, Some Physiologic Aspects of Acidosis.

Dr. Arthur F. Abt, Dr. L. Martin Hardy, Chester J. Farmer, A.M., and Jessie D. Maske, all of Chicago, Relation of Vitamin C to Scarlet Fever, Rheumatic Infections and Diphtheria in Children.

Drs. Harold K. Faber and Edward B. Towne, San Franciso, Surgical Treatment of Cranial Synostosis with Special Reference to Prevention of Blindness.

Dr. Bert I. Beverly, Chicago, Anxieties in Childhood.

Annual Meeting of College of Physicians.-The twentysixth annual session of the American College of Physicians will be held at the Municipal Auditorium in St. Paul, April 20-24, under the presidency of Dr. Roger I. Lee, Boston. "Medical Horizons" is the theme of the meeting. The program of the general sessions complements that of the clinics, panel discussions and morning lectures, which will be held throughout the week. Included among the speakers of the six general sessions will be:

Drs. Edgar V. Allen and Nelson W. Barker, Rochester, Minn., Clinical Studies on the Prevention of Venous Thrombosis and Pulmonary Embolism by the Use of a Preparation from Spoiled Sweet Clover Which Prolongs Coagulation and Prothrombin Time of the Blood. Dr. Oswald F. Hedley, Bethesda, Md., U. S. Public Health Service, The Fraudulent Use of Digitalis to Simulate Heart Disease. Dr. Walter S. McClellan, Saratoga Springs, N. Y., New Trends in Treatment of Chronic Disease; An Experience in Spa Therapy. Dr. Martin Henry Dawson, New York, Penicillin as a Chemotherapeutic Acent.

Agent. r. Chester S. Keefer, Boston, Gramicidin in the Treatment of Local Dr. Chesie. Infections.

Dr. Nathan S. Davis III, Chicago, Factors Which May Influence Senescence.

A symposium on aviation medicine will constitute the afternoon's program at the first general session Monday with the on "A Brief History of Aviation Medicine and the Physical Qualifications for Flying"; John R. Poppen, captain, M. C., U. S. Navy, Washington, D. C., "Effects of High Speed Including Dive Bombing; Aero Embolism," and Harry G. Armstrong, M. C., U. S. Army, Randolph Field, Texas, "Want and the Use of Supplementary Oxygen." On Wednesday afternoon another general session will be devoted to communicable

diseases. At the annual convocation on Wednesday evening, Dr. Lee will deliver his presidential address and Dr. William deB. MacNider, Kenan research professor of pharmacology, University of North Carolina School of Medicine, Chapel Hill, N. C., will give the convocational address on "A Consideration of the Factor of Change in the Animal Organism." The John Phillips Memorial Medal for 1941-1942 will be presented at this meeting.

The Nutrition Foundation. - Sixteen food companies recently cooperated in creating the Nutrition Foundation, Inc., to develop and apply the science of nutrition for the improve-ment of the diet and health of the American people. Officers include George A. Sloan, New York City Commissioner of Commerce, president; Charles Glen King, Ph.D., professor of chemistry, University of Pittsburgh, vice president; Ole Salthe, formerly director of the Bureau of Food and Drugs, Department of Health, New York, and more recently consultant of the Food and Drug Administration, Federal Security Agency, Washington, D. C., executive secretary, and Karl T. Compton, Sc.D., Cambridge, Mass., president of the Massachusetts Institute of Technology, chairman of the board. The new group held its inaugural dinner on March 12 in New York. On March 16 the organization of a scientific advisory committee March 16 the organization of a scientific advisory committee for the foundation was announced. Members are Dr. Frank G. Boudreau, executive director, Milbank Memorial Fund, New York; Conrad A. Elvehjem, Ph.D., University of Wisconsin, Madison; Icie M. Hoobler, Ph.D., Children's Fund of Michigan, Detroit; Paul E. Howe, Ph.D., Surgeon General's Office, U. S. Army, Washington, D. C.; Elmer V. McCollum, Ph.D., Johns Hopkins University School of Hygiene and Public Health, Baltimore; Leonard A. Maynard, Ph.D., Cornell University, Ithaca, N. Y.; John R. Murlin, Ph.D., University of Rochester, Rochester, N. Y.; Roy C. Newton, Ph.D., Swift & Co., Chicago; Lydia J. Roberts, Ph.D., Department of Home Economics, University of Chicago; William C. Rose, Ph.D., University of Illinois, Urbana, Ill.; Dr. William H. Sebrell Jr., U. S. Public Health Service, Washington, D. C.; Henry C. Sherman, Ph.D., Columbia University, New York; Dr. Frederick F. Tisdall, University of Toronto, Toronto, Canada, and Robert R. Williams, Sc.D., chemical director, Bell Telephone Laboratories, New York. There is also a food industries advisory committee. The sixteen founder companies of the new foundation have The sixteen founder companies of the new foundation have guaranteed \$10,000 a year each for over a five year period, although it is hoped that eventually increased funds will be received to expand both research and service. Membership in the foundation of the corporation is to consist of three classes: founder members, sustaining members and public members. There shall be one annual meeting of the corporation.

### LATIN AMERICA

Committee for Medical Defense .- The Medical Federation of Cuba recently formed a committee on medical defense with Dr. Pedro L. Farinas Mayo, Havana, Cuba, as director. A meeting was held January 23 by Drs. Moisés Chediak, Havana, on "National Organization of Departments for Blood Transfusion," and Guillermo López Rovirosa, Havana, on "Importance of Establishing Laws for Food Rations in Any Possible Difficulties."

## Deaths in Other Countries

Sir Henry Britten Brackenbury, chairman of the council of the British Medical Association; from 1915 to 1924 chairman of the Insurance Acts Committee and until 1927 chairman of its representative body; member of the General Medical Council and of the advisory committee to the Ministry of Health; practiced general medicine from 1892 to 1927; mayor of the borough of Hornsey, 1895-1896, and alderman till 1930; died at his home in Yeovil, Somerset, England, March 10, aged 76.

# Government Services

## Mobile Unit Used in Industrial Hygiene Service

The mobile unit of the Division of Industrial Hygiene of the National Institute of Health has just completed a survey covering fifteen plants and eight states. The five plants surveyed in Alabama top the number for any individual state. Three plants in Arkansas were included, two in Louisiana and one each in Mississippi, West Virginia, Kentucky, Oklahoma and Tennessee. A physician and an engineer were in charge of the survey.

# Foreign Letters

### LONDON

(From Our Regular Correspondent)

Feb. 14, 1942.

# An Official Medical History of the War

The work of compiling an official medical history of the war has begun. An editorial board under the chairmanship of the president of the board of education and composed of representatives of the fighting services, the Ministry of Health, the Department of Health of Scotland, the Committee of Imperial Defense and the Medical Research Council has been set up by the war cabinet to direct the preparation of a medical history of the war. This board will have the active collaboration of authoritative bodies and experts. They have met and discussed the scope and plan of the undertaking, the value of such a record made during the war and the war's contribution to medical science. Sir Arthur MacNalty, recently chief medical officer of the Ministry of Health, has been appointed editor in chief, and representatives have been appointed by the service departments concerned. The collection and classification of material has already begun. Much material on medical wartime problems exists and, of course, will grow as the war progresses. The editorial board hopes for the full support and cooperation of the medical profession and requests copies of published articles, reports and other information from health officers and physicians which may be of use in assembling material for the medical historians. They are invited to send it to the Editor in Chief, Medical History of the War, Room 208, Caxton House West, Tothill Street, London, S.W. 1.

### The Sprue Syndrome

In Guy's Hospital Reports Sir Arthur Hurst describes an important advance which unifies the pathogenesis of the two sprue diseases and celiac disease. He points out that three constant and characteristic features are common to sprue, nontropical sprue and celiac disease and they require explanation in any theory explaining their pathology: 1. The stools contain an excess of split fat but no excess of neutral fat, meat fibers or starch, and no inflammatory material. 2. Roentgenography shows disappearance of the normal feathery or herring bone aspect of the duodenum and jejunum due to the valvulae conniventes. 3. No pathologic changes are found in the intestine after death if postmortem changes have been prevented. Under adequate treatment normal absorption of fat is restored with normal roentgenographic appearances. Hurst therefore concludes that tropical sprue, nontropical sprue and celiac disease are varieties of the same disorder-"the sprue syndrome" -and differ only in the part of the world in which the disease originates and the age of the patient. The characteristic features of the sprue syndrome are the result of paralysis of the muscularis mucosae, which would lead to loss of the pumping action of the villi, by means of which fat is conveyed from the lacteal radicles of the villi into the larger lacteals and to flattening of the valvulae conniventes without changes in normal appearance of the mucous membrane. Paralysis of the muscularis mucosae may be secondary to loss of the normal stimulant of Meissner's (submucosal) plexus or to the effect of vítamin deficiency or some toxemia on the plexus. An exception must be made for those cases of the sprue syndrome associated with disease of the mesenteric glands. Here the hindrance to fat absorption occurs at the level of the mesenteric glands instead of in the villi.

The Danish physician T. E. H. Thaysen previously (1932, 1935) gave good reasons for regarding sprue, nontropical sprue and celiac disease as varieties of the same disease. Celiac disease differs from sprue only in showing characteristics

depending on its occurrence in young and growing children. There is no difference between celiac disease in European children whether it develops in the tropics, when it is likely to be called sprue, or in Europe, or between tropical and so-called nontropical sprue. As Thaysen has pointed out, the tendency to regard diseases more common in the tropics as differing fundamentally from similar ones occurring in nontropical countries is quite unjustifiable. It has gradually been recognized that true beriberi occurs in England and even in Iceland and Newfoundland as well as in hot climates whenever the essential dietetic deficiency is present. The same holds for pellagra, which was long regarded as a purely tropical disorder. Thaysen gave the name idiopathic steatorrhea to the group of diseases comprising sprue, nontropical sprue and celiac disease. But this does not give any indication that the steatorrhea consists in the excretion of split fat in the excretion form of fatty acids and soaps and not of neutral fat.

## Canadian Orthopedic Unit for Scotland

An appeal to Canada to send an orthopedic unit for service in the Scottish emergency hospitals has met with a prompt response. Nine Toronto orthopedists and twenty-two nurses experienced in orthopedic work and chosen from all parts of the dominion have arrived with the latest contingent of Canadian soldiers. They brought some special equipment, the gift of the Canadian Red Cross Society, which, with the Canadian Medical Association, organized the unit. The unit is led by Dr. Le Mesurier of the Toronto Sick Children's Hospital and Miss A. B. Hunter, who was matron at Port Arthur General Hospital. Dr. Andrew Davidson, chief medical officer for Scotland, who welcomed the unit, said that before the war Scotland had inadequate provision for orthopedic surgery; now it had the makings of a first class scheme not only for the present emergency but for the postwar period.

## The Vitamin D Added to Margarine to Be Doubled

In the last great war the margarine, which then, as now, largely replaced butter, left much to be desired. It was not vitaminized and had a vile taste. Now the taste is so good that few can distinguish it from butter, which it is claimed to equal in vitamin content. It is announced that the amount of vitamin D added to margarine is to be doubled and that in future an ounce will contain more of the vitamin than an average egg. Vitamin D is specially important for children because of its part in the forming of bones and teeth. The other principal sources of vitamin D are eggs and cod liver oil. Increasing advantage is being taken of the free distribution of the oil. But whether the addition of synthetic vitamins to margarine makes it equal to butter has been questioned by Prof. J. C. Drummond, scientific adviser to the Ministry of Food, as stated in a previous letter. He holds that our knowledge of vitamins is still imperfect, that there may still be factors in our natural foods besides those which are replaced by synthetic vitamins.

## Acute Hemorrhagic Pancreatitis as a Cause of Sudden Death

The symptoms of acute pancreatitis are generally compared to those of perforation of the stomach or intestine, but the shock and pain are stated to be even more intense. Yet, while sudden death is recognized as a rare result of perforation, this is unmentioned in the textbook descriptions of acute pancreatitis and does not appear to have been reported in British journals previously. Dr. J. F. Gaskell, physician to Addenbrooke's Hospital, Cambridge, has recorded in the Clinical Journal for January 10 cases of sudden death due to acute hemorrhapic pancreatitis which have come under his observation since December 1932 in necropsies performed by order of the coroner. The subjects were apparently in normal health within two hours of being found dead, except when death had taken

place in bed at night. The evidence that acute pancreatitis was the cause of the sudden death is the condition of the pancreas, with failure, except in one case, to discover any other possible cause. The pancreas was softer than normal and showed hemorrhages in its substance round the ducts and vessels. Fat necrosis was found microscopically, but the macroscopic evidence was slight, which Dr. Gaskell explains by the fact that the death was too sudden to allow it to develop. How dramatic the cases were in their suddenness is shown by the case of a Cambridge undergraduate aged 22, who went on a hare and hound run almost directly after a heavy meal. He stopped about a mile away and bent forward with his hands on his abdomen. He sat in a hedge and was left by a friend, who thought that he was winded. Others in the run coming up later found him dead. The necropsy showed acute hemorrhagic pancreatitis. The pancreas was swollen and tinged pink throughout and microscopically was entirely necrosed with hemorrhages round the vessels.

### Streptococcic Cross Infection in Hospital Wards

Recently the danger of wounds becoming infected in hospital wards has been recognized. At a meeting of the Section of Surgery of the Royal Society of Medicine the president, Mr. E. Rock Carling, said that surgeons had been slow in appreciating the work on cross infection done by physicians in hospitals for i'afectious diseases but that shortly before the war much work was done in wards and operating rooms in the study of the bacterial content of the air and in attempts to sterilize the air by aerosols or ultraviolet rays. Some of the results were startling. Perhaps it was not surprising that in the course of bronchoscopy bronchial flora should in a few minutes be recovered from a distant part of the operating room, but it was surprising that air hitherto entirely free from Bacillus pyocyaneus should be found to contain it within five minutes of opening an abscess in which it was present. After Dunkirk surgical literature became full of more extended investigations, and a group of pathologists put forward a new technic for war dressings (THE JOURNAL, Nov. 15, 1941).

Prof. A. A. Miles said that the organism commonly concerned in cross infection in wards, Streptococcus pyogenes, was most easily traced. It was not the commonest cross infecting organism but, owing to its pathogenicity, the most important. In the peacetime surgical ward the streptococcus reservoir was mainly in the upper respiratory tract. In war additional reservoirs were wounds infected before admission, and hospital infection was more common. The three main channels of infection—dust, droplets and hands and instruments—demanded separate precautions. They could be divided into those in the technic of wound dressing and those apart from it. An improved "no touch" technic with rigid separation of the duties of the dressing team and special precautions against the carrying of infection from bed to bed had substantially reduced hospital infection.

Prof. J. Paterson Ross described the essentials of good technic as follows: 1. Precautions against contamination by dust: bed making to be completed an hour before dressings began; lids for dishes and buckets; wounds to be exposed for only a minimum time. 2. Precautions against contact infection: fingers never to touch a wound, skin around or dressings next the skin; forceps to be used or gloves worn; hands and instruments to be dry. 3. Methods of sterilization: instruments and accessories for dressing to be sterilized by effective methods; cleaning of baths to be beyond reproach.

Dr. M. van den Ende said that bacteria were carried through the air in droplets or dust particles. Large droplets carrying infective doses had a relatively short range and fell to the ground rapidly. Adequate bed spacing and masking was the most effective method of dealing with them. Dry dust borne organisms were distributed into the air in large numbers during

bed making and floor sweeping and might remain suspended for long periods. They could be reduced by treating floors and bedclothes with dust laying oils.

Sir James Walton said that in this war, in contrast to the last war, there had been little experience with gross infections. Bomb lacerations were operated on as soon as the patients got over the shock. If possible, the wounds were sewn up and a dressing was put on which was not removed for ten days, and then complete healing was found. If the wounds were large they were packed with petrolatum gauze, which was not touched for three or four days. Ever since the last war he had been teaching that dressers should use only forceps and should touch nothing with the hand.

### London's Underground Railway as a Refuge

Remarkable figures are given of the part played by London's underground railway system as a place of refuge from air raids. During 1941, sixteen million people were given shelter at seventy-nine underground stations. Eight and a half miles of three tier bunks were installed on platforms and subways. Canteens for the refugees were provided, and 11 tons of food was distributed nightly during the raids. Other war measures were also taken by the Transport Board. Three hundred and eighteen thousand four hundred yards of netting was put on vehicle windows to protect passengers from glass broken by blast. Nine thousand five hundred women workers displaced men on the railway. Two thousand three hundred allotments of 80 acres were cultivated for the growing of food by the railway employees.

### RIO DE JANEIRO

(From Our Regular Correspondent)

Jan. 25, 1942.

### Medical Advertising Regulated by Law

There is no medical association in Brazil with the significance and functions corresponding to those of the American Medical Association in the United States. There are many local medical societies, and in Rio de Janeiro there is the National Academy of Medicine; but a system of affiliation of the local associations into a central national organization is completely lacking. In a country larger than continental United States and insufficiently provided with means of communication, these local medical societies are completely separated from one another. Thus there is no uniformity of policies, no ideas in common, and in certain cases there is even some antagonism. The lack of a central professional body to establish policies explains the diversity of attitudes of separated groups of physicians, the variable behavior of the practitioners and the diversified ethical codes which they follow. Consequently it is not uncommon for many physicians to indulge in extensive advertising, use academic and professional titles to which they are not entitled. try to deceive patients with promises of cure that cannot be fulfilled, and boast special systems of medicine that in some instances border on quackery.

To remedy this situation, federal legislation has been enacted attempting to regulate medical advertising. This act forbids physicians to advertise (1) the cure of certain diseases for which there is no established treatment, (2) treatments aiming to control or to interrupt pregnancy, (3) the practice of more than two medical specialties, (4) treatments through correspondence and newspapers or over the radio, (5) the practice of a medical specialty not included in the curriculum of medical schools and the reference to methods of diagnosis and of treatments not yet recognized by the medical societies, (6) the practice of nonpaid consultations in private offices, (7) discrediting references to systems of medicine and to therapeutic procedures recognized by the present legislation and (8) testimonials or statements from patients certifying the cure of diseases for which there is no established treatment. The act permits the physician to

advertise his academic and scientific titles or real professional qualifications, the price of his services and a general reference to the resources and appliances he uses, as x-rays, radium or medical electricity. It is also permissible to use the press or the radio to discuss medical and health problems in a general manner, without the character of individual treatment. Another section of the same act is intended to control the exaggerations used in the advertising of "patent medicines" and proprietary drugs. It is forbidden to advertise these drugs in the lay press (1) without the declaration "to be sold only under medical prescription" if this condition has been imposed in the licensing of the drug, (2) with the claim to cure tuberculosis, syphilis, cancer or blennorrhagia, (3) with the support of statements from lay patients that they have been cured, (4) with the claim to control or to interrupt pregnancy, (5) with discrediting references to the climate or to the sanitary conditions of the country and (6) with pictures to exhibit physical deformities or obviously faked illustrations to deceive the public.

### Leprosy in Brazil

Leprosy is an important health problem in Brazil, because of the large absolute number of cases and the slightly increasing trend. The earliest reference to the disease in this country is from Sa Menezes in 1696. Saint-Hilaire described cases of leprosy in 1820 in the state of Minas Gerais. Prior to 1920 there was no special organization to combat leprosy in Brazil. In that year Carlos Chagas created the division of leprosy in the Brazilian Public Health Service, and Prof. Eduardo Rabello was put in charge of that division. At that time about 20,000 cases of leprosy were supposed to exist in Brazil. The first work of the new division of leprosy was to establish centers of diagnosis throughout the country. Ten years later the number of lepers was estimated by Rabello and Silva Araujo to be about 30,000. Dr. Ernani Agricola, now in charge of the division of leprosy, estimates that the present number of lepers is at least 45,000, or about 100 per hundred thousand of population. According to the leprologist Muir, in the whole world the bulk of the patients are in Asia and Africa (China 1 million, India 1 million, Africa about half a millon). The prevalence of leprosy in Brazil is comparable to that of Russia, which has about 170,000 lepers to 170 million of population. The most recent statistics place the number of lepers in the Americas at below 100,000. The estimated distribution is, however, most irregular, and the figures are repeatedly being revised upward.

There are now sixteen modern leprosariums in Brazil, where 15,173 patients were isolated, Dec. 31, 1941. In the state of São Paulo more than 90 per cent of the contagious cases are isolated in six leprosariums. About 2,500 cases are isolated in the state of Minas Gerais and about 1,000 in the state of Para. There are fifteen preventoriums where nondiseased children of lepers are interned, and many more institutions are in course of organization. Many centers of treatment are in operation. where chaulmoogra oil is used extensively. Since 1938 the technic of infiltration of the lesions, through multiple local injections of chaulmoogra oil, has been increasingly used, with promising better results. The raw chaulmoogra material has been imported from India, and the chemical division of the Oswaldo Cruz Institute refines this material and prepares three different kinds of chaulmoogra derivatives. The Brazilian personnel of the institute has been trained by an American specialist, Dr. Howard Cole. The institute is trying to prepare therapeutic material from Brazilian plants of the genus Hydnocarpus. Extensive studies on the biology of the leprosy bacillus have been carried out in the Oswaldo Cruz Institute by Dr. H. C. Souza Araujo, who knows the problem of leprosy from direct observation in about forty countries of the world. The epidemiology of leprosy in Brazil is also now under investigation. About 25 per cent of the cases are of the pure nervous form. The disease is more prevalent in males than in females, and

also more prevalent in colored natives than in white Brazilians. The prevalence is higher in white foreign people and in white foreign born Brazilians than in white native born Brazilians,

# Brazilian Council of Ophthalmology

As a result of the decision of the fourth Brazilian Congress of Ophthalmology, held in Rio de Janeiro in July 1941, the Brazilian Council of Ophthalmology has been founded. The chief functions of the council are (1) to promote the development and progress of the specialty in Brazil and to establish standards of fitness to practice ophthalmology, (2) to act as preceptors for prospective students of ophthalmology and (3) to arrange and conduct examinations to test the qualifications of those who practice ophthalmology and desire a certificate to prove that they meet the standards established by the council. The council will be formed by the professors of ophthalmology from the medical schools of Rio de Janeiro, São Paulo, Bahia, Porto Alegre, Recife and Bello Horizonte and the presidents of the Brazilian Association of Ophthalmology and of four other state ophthalmologic associations. There will be a central executive board and a regional board in each one of the twenty states of Brazil. Examinations will be held annually and will include the applicant's professional and ethical record (at least two years of private practice), at least twenty case reports and a written examination. The constitution of the council permits, as an introductory measure, that the certificate be issued, up to June 30, 1942, to the physicians who prove that they have had a private practice of ophthalmology of at least five years, or at least two years of practice if they prove the completion of an internship of ophthalmology of not less than one year, or to the physicians who are at present ophthalmologists of hospitals, of clinics and of federal, state or municipal health organizations.

# Marriages

Mervyn Shoor, Lieutenant (j. g.), Medical Corps, U. S. Navy, to Miss Enid Olivi of San Francisco, at Mare Island, Calif., Oct. 25, 1941.

ANGUS CRAWFORD RANDOLPH, Lynchburg, Va., to Miss Marjorie Armstrong McLernon of San Antonio, Texas, Dec. 20, 1941.

HAWLEY HOWARD SEILER, Paia, Maui, Hawaii, to Mlle. Marie Augusta Schreiber of Paris, France, Oct. 4, 1941.

RALPH SILER MORGAN, Durham, N. C., to Miss Ruth Evelyn Dodd of Asheville in Arden in December 1941.

RICHARD A. FORNEY, Rochester, Minn., to Miss Margaret Magel of Twin Falls, Idaho, Aug. 28, 1941.

IGNATIUS W. MADURA to DR. EDITH EASON, both of Chicago, at North Bend, Neb., Dec. 20, 1941.

CLEMENT W. BYRNES to Miss Nona Jane Moore, both of Dunlap, Iowa, in St. Louis, Dec. 23, 1941.

Anthony Ralph Marsicano, Brooklyn, to Miss Marion Elizabeth Hobbs of Macon, Dec. 25, 1941.

PHILIP CARY WHITEHEAD, Chatham, Va., to Dr. BETTY GORDON WILLIS of Culpeper, Dec. 25, 1941.

FREDERICK MARTIN GRAHAM to Miss Elizabeth Braasch,

both of Rochester, Minn., Nov. 15, 1941. ARTHUR C. LAWRENCE, Lincoln Park, N. J., to Miss Evelyn H. Abrash of Paterson, Nov. 30, 1941.

EDMOND H. KALMON JR., Albany, Ga., to Miss Marion Binkley at Nashville, Tenn., Dec. 2, 1941.

MASON C. SMITH, Meriden, Miss., to Dr. Elvira A. Corrales of Tampa, Fla., Dec. 29, 1941.

ARTHUR F. GRANDINETTI, Davenport, Iowa, to Miss Rose Tomlin of Waterloo, Dec. 29, 1941.

WILLIAM M. KUNTZ, Columbus, Ohio, to Miss Mertes Mudd of Waco, Texas, Dec. 30, 1941.

GEORGE C. McCALLUM, Portland, Ore., to Miss Ruth Wain's of McMinnville, Dec. 27, 1941.

ROBERT HAYTER, Dallas, Ore., to Miss Joan Schuyler of Tacoma, Wash., Dec. 5, 1941.

# Deaths

Frank Frazier Hutchins, Indianapolis; Medical College of Indiana, Indianapolis, 1892; member of the Indiana State Medical Association and the National Committee for Mental Hygiene; instructor at the Butler University Medical Department and the Indiana Medical College from 1892 to 1895; assistant professor of psychology and psychiatry at the Central College of Physicians and Surgeons from 1903 to 1905; professor of mental and nervous diseases at the State College of Physicians and Surgeons from 1906 to 1908; professor of Medicine from 1908 to 1937 and since 1937 emeritus professor; served as a lieutenant colonel during World War I; at one time medical director and superintendent of the Marion (Ind.) National Sanatorium; formerly chief of the neuropsychiatric service at the Walter Reed General Hospital in Washington, D. C.; clinical director of neuropsychiatry at the United States Veterans' Bureau from June 1922 to July 1923, and formerly dean of the school of neuropsychiatry; colonel in the medical reserve corps of the United States Army; consultant to the City Hospital, Robert W. Long Hospital and the James Whitcomb Riley Hospital for Children; aged 71; died, February 22, in the Methodist Hospital of cerebral hemorrhage.

Martha Tracy € Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1904; since 1940 assistant director of public health of Philadelphia; was associated with her alma mater since 1907 as associate professor and director of the laboratory of physiologic chemistry from 1907 to 1913, professor of physiologic chemistry from 1913 to 1921, professor of hygiene from 1921 to 1923, professor of preventive medicine from 1923 to 1931, dean from 1917 to 1940 and since 1940 emeritus dean; worked with the research department of experimental pathology at Cornell University Medical College, New York, from 1904 to 1907, and for many years under the Huntington Fund for Cancer Research, New York; formerly a member of the board of health of Philadelphia and director of the Philadelphia health council and tuberculosis committee; fellow of the American College of Physicians of Philadelphia; past president of the American Medical Women's Association; in 1917 was awarded the doctor of public health degree from the University of Pennsylvania, Philadelphia; aged 65; died, March 22, in the Hospital of the Woman's Medical College of pneumonia.

James Addison Price & Memphis, Tenn.; Atlanta (Ga.) College of Physicians and Surgeons, 1912; past president of the Tennessee Tuberculosis Association; formerly vice president of the National Tuberculosis Association; served during World War I; at one time assistant professor of medicine at the University of Tennessee College of Medicine; superintendent of the Irene Byron Sanatorium, Fort Wayne, Ind., from 1919 to 1921; from 1921 to 1941 medical director of the Oakville (Tenn.) Memorial Sanatorium; was on the staffs of the Methodist Hospital, John Gaston Hospital and the Baptist Memorial Hospital, where he died, January 10, of cerebral hemorrhage, aged 54.

Harry Arthur Paskind & Chicago; University of Illinois College of Medicine, Chicago, 1920; associate professor of nervous and mental diseases at Northwestern University Medical School; member of the American Neurological Association, Association for Research in Nervous and Mental Diseases and the Central Neuropsychiatric Association; president of the Chicago Neurological Society, 1940-1941; served during World War I; editor of the psychiatric section of the Year Book of Neurology, Psychiatry and Endocrinology from 1934 to 1938; aged 45; attending neurologist, Evanston (Ill.) Hospital, where he died. March 24, of bronchiectasis and cardiac hypertrophy.

Arnold R. Miller, Harrisville, Mich.; Detroit College of Medicine, 1906; member of the Michigan State Medical Society; past president of the Alpena County Medical Society; for many years mayor of Harrisville; member of the board of education; chairman of the Civilian Defense Council and an examiner for the county draft board; at one time acting assistant surgeon in the United States Public Health Service; owner of a hospital bearing his name; aged 59; died, February 22, of injuries received in an automobile accident.

R. Andral Bratton, York, S. C.; Medical College of the State of South Carolina, Charleston, 1884; member of the South Carolina Medical Association; past president of the York County Medical Society; formerly member of the state board

of medical examiners; for many years a member of the board of trustees of the city schools; on the visiting staff of the York County Hospital, Rock Hill; aged 82; died, January 26, of arteriosclerosis.

Harry Louis Pollock & Chicago; College of Physicians and Surgeons of Chicago, 1894; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; head of the department of otolaryngology, American Hospital; on the staff of the Walther Memorial Hospital; aged 67; died, January 24, in Los Angeles.

Alfred Jones Drury ® Roselle, N. J.; Queen's University Faculty of Medicine, Kingston, Ont., Canada. 1923; member of the Medical Society of New Jersey; on the staffs of the Elizabeth General Hospital and St. Elizabeth Hospital, Elizabeth, N. J., and the Rahway (N. J.) Hospital; physician for the public schools; aged 44; died, January 24, of coronary thrombosis.

Nathan Goodfriend ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1902; fellow of the American College of Surgeons; attending ophthalmologist, Bronx Hospital, and secretary of its medical board; assistant surgeon, Manhattan Eye, Ear and Throat Hospital; aged 61; died, January 17, of coronary thrombosis.

Frank Edgar Fee Dincinnati; Medical College of Ohio, Cincinnati, 1895; professor emeritus of clinical surgery at the University of Cincinnati College of Medicine; fellow of the American College of Surgeons; visiting surgeon, Christ Hospital; consulting surgeon, Cincinnati General Hospital; aged 68; died, January 29, of coronary occlusion.

Ambrose Watts Thrush, Chambersburg, Pa.; Jefferson Medical College of Philadelphia, 1890; member of the Medical Society of the State of Philadelphia; secretary and past president of the Franklin County Medical Society; formerly county coroner; aged 76; on the staff of the Chambersburg Hospital, where he died, January 28, of pneumonia.

W. Kempton Browning, Merchantville, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1897; member of the Medical Society of New Jersey; served as medical inspector in the schools of Camden and Merchantville; aged 67; died, January 22, in the Cooper Hospital, Camden, of coronary occlusion and lobar pneumonia.

Charles Harkness Willits, Miami, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1879; medical director of the Provident Mutual Life Insurance Company in Philadelphia; aged 84; died, January 2, of aortic stenosis and chronic cystitis.

Bertrum Brant McElhany & Youngstown, Ohio; Western Reserve University Medical Department, Cleveland, 1900; on the consulting staff of St. Elizabeth Hospital; aged 69; died, January 13, in the Youngstown Hospital, Southside Unit, of injuries received when struck by an automobile as he was crossing the street.

Oat Whitney & Adrian, Mich.; Michigan College of Medicine and Surgery, Detroit, 1894; past president and secretary of the Lenawee County Medical Society; on the staff of the Emma L. Bixby Hospital; aged 73; died, January 7, in the Harper Hospital, Detroit, of primary splenic anemia and pyelonephritis.

Frederick Chalfonte Peters, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1911; served during World War I; since 1939 professor and head of the department of ophthalmology at his alma mater; aged 54; died, January 7, in the Hahnemann Hospital of intracranial hemorrhage.

David Arthur Morgan, Memphis, Tenn.; Barnes Medical College, St. Louis, 1905; served during World War I; at one time on the staff of the United States Veterans Hospital, Excelsior Springs, Mo.; aged 58; died, February 23, in the Baptist Memorial Hospital of cerebral hemorrhage.

John Adams Miller, Roscoe, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1887; member of the Medical Society of the State of New York; for many years county coroner; aged 79; died, January 17, in Monticello of chronic myocarditis.

Samuel Mathew McLaughlin, Santa Monica, Calif.; Eclectic Medical Institute, Cincinnati, 1899; served during World War I; aged 68; was shot and killed, January 18, when he was driving past an aircraft plant and the gun of a soldier who was on guard was accidentally discharged.

Gertrude Anna Spriggs, Lomita, Calif.; College of Physicians and Surgeons of San Francisco, 1900; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; member of the California Medical Association; aged 77; died, Dec. 30, 1941.

Daniel Crumlish Handley, Cincinnati; Cincinnati College of Medicine and Surgery, 1897; member of the Ohio State Medical Association; at one time county and deputy coroner; served during World War I; aged 73; died, January 30, in Christ Hospital of uremia.

Charles Joseph Jaquish, Houston, Texas; University of Pennsylvania School of Medicine, Philadelphia, 1920; member of the State Medical Association of Texas and of the American Academy of Ophthalmology and Otolaryngology; aged 50; died, Dec. 24, 1941.

Charles Hayes King, Bucyrus, Ohio; Ohio Medical University, Columbus, 1906; member of the Ohio State Medical Association; past president and secretary of the Crawford County Medical Society; aged 63; died, January 29, of cerebral hemorrhage.

Henry John Niebruegge, St. Louis; St. Louis College of Physicians and Surgeons, 1900; member of the Missouri State Medical Association; on the staff of the Deaconess Evengelical Home and Hospital; aged 68; died, January 13, of heart disease.

Peter Albert Trice, Thomasville, Ala.; Louisville (Ky.) Medical College, 1902; member of the Medical Association of the State of Alabama; aged 67; died, January 14, in the Goldsby King Memorial Hospital, Selma, of cerebral hemorrhage.

George Francis Pierrot & Seattle; American Medical College, St. Louis, 1889; St. Louis College of Physicians and Surgeons, 1890; formerly health officer of Wahkiakum County, Wash., and Eldorado County, Nev.; aged 80; died, Dec. 9, 1941.

Watson Fuller Wood, White Church, Kan.; University Medical College of Kansas City, Mo., 1891; member of the Kansas Medical Society; aged 81; died, January 20, in the Bethany Hospital, Kansas City, of cerebral hemorrhage.

Thomas Shaw Webster, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, 1888; University of Toronto Faculty of Medicine, 1889; one of the founders of the Toronto Western Hospital; aged 84; died, Dec. 30, 1941.

David Herman Fuller, Fall River, Mass.; Jefferson Medical College of Philadelphia, 1904; formerly medical director and superintendent of the Fall River General Hospital; aged 61; died, January 31, in Westboro of meningoencephalitis.

Ernest Lafayette Handley, Pocahontas, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1920; member of the Arkansas Medical Society; formerly county coroner; aged 48; died, Dec. 9, 1941, in a hospital at Jonesboro.

Henry Albert Pfeifer, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1909; member of the State Medical Society of Wisconsin; aged 59; died, January 12, in St. Joseph's Hospital of cirrhosis of the liver.

Edward M. Harris, Cushing, Okla.; Chattanooga (Tenn.) Medical College, 1901; member of the Oklahoma State Medical Association; aged 69; died, January 26, in the Oklahoma City General Hospital of diabetes mellitus and thrombosis.

Emerson Meadows Cooper, Rockwood, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1900; member of the Michigan State Medical Society; aged 65; died, January 29, in the University Hospital, Ann Arbor, of uremia.

Lafayette Franklin Shoemaker, Hillsboro, Texas; Medical College of Alabama, Mobile, 1902; member of the State Medical Association of Texas; aged 73; died, Dec. 22, 1941, in a hospital at Temple of cerebral hemorrhage.

Albert Louis Gustetter & Tucson, Ariz.; Medical College of Ohio, Cincinnati, 1900; past president of the board of medical examiners; veteran of the Spanish-American and World wars; aged 65; died in January of pneumonia.

Frank Terry Brooks, Palma, Majorca, Spain; Long Island College Hospital, Brooklyn, 1893; aged 73; died, January 12, in the Hospital of the Good Samaritan, Los Angeles, of arteriosclerosis, heart disease and diabetes mellitus.

Walton Wheeler Young, Washington, D. C.; Howard University College of Medicine, Washington, 1921; aged 65; died, January 6, in the Eastern Dispensary and Casualty Hospital of myocarditis and arteriosclerosis.

Lincoln Jay Pierce, Brookfield, Mo.; National University of Arts and Sciences Medical Department, St. Louis, 1913; member of the Missouri State Medical Association; aged 56; died, January 22, of mesenteric thrombosis.

Donald John Macdonald, Halifax, N. S., Canada; McGill University Faculty of Medicine, Montreal, Que., 1897; served during World War I; fellow of the American College of Surgeons; aged 69; died, Dec. 19, 1941.

Joseph J. Shafer & Louisville, Ky.; Southern Medical College, Atlanta, 1897; member of the American Academy of Ophthalmology and Otolaryngology; aged 70; died, January 4, in St. Anthony's Hospital of pneumonia.

R. J. Clower, Morven, Ga.; Atlanta Medical College, 1895; member of the Medical Association of Georgia; aged 68; died, January 12, in the Brooks County Hospital, Quitman, of coronary occlusion and chronic nephritis.

Francis Marion Thurmon, Pearl, III.; Barnes Medical College, St. Louis, 1904; member of the Illinois State Medical Society; formerly mayor and member of the school board; aged 69; died, January 14, of uremia.

William W. Long, Sulphur Springs, Texas; Memphis (Tenn.) Hospital Medical College, 1901; member of the State Medical Association of Texas; aged 71; died, January 11, in Dallas of coronary sclerosis.

Andrew Hunter & McKeesport, Pa.; Medico-Chirurgical College of Philadelphia, 1891; served during World War I; on the staff of the McKeesport Hospital; aged 72; died, January 23, of hypernephroma.

Frederick Kent Ream, Palm Beach, Fla.; Rush Medical College, Chicago, 1892; also a dentist; aged 72; died, January 18, in the Good Samaritan Hospital, West Palm Beach, of a self-inflicted bullet wound.

John H. O'Dell, Three Rivers, Mich.; Detroit College of Medicine, 1903; member of the Michigan State Medical Society; on the staff of the Three Rivers Hospital; aged 63; died, January 29, of pneumonia.

Norman Paull Hersam ⊕ Stoneham, Mass.; Harvard Medical School, Boston, 1912; school physician; aged 57; died, January 15, in the Middlesex County Sanatorium, Waltham, of miliary tuberculosis.

Sidney Bruce Matthews, Winnfield, La.; Memphis (Tenn) Hospital Medical College, 1911; aged 68; died, January 18. in a hospital at Shreveport of arteriosclerosis and hypertensive cardiovascular disease.

Moses Lot Haning, Browning, Mo.; St. Louis University School of Medicine, 1903; member of the Missouri State Medical Association; aged 63; died, January 9, in Muskogee, Okla, of coronary occlusion.

Fred V. Watson & Los Angeles; Marion-Sims College of Medicine, St. Louis, 1899; on the staff of the Presbyterian Hospital-Olmstead Memorial; aged 65; died, January 6, of cerebral hemorrhage.

Charles Terrel Hughes, Gainesville, Texas; Kentucky School of Medicine, Louisville, 1889; member of the State Medical Association of Texas; aged 81; died, January 15, of cerebral hemorrhage.

Anthony Lothar Fink, Carroll, Iowa; Deutsche Universität, Medizinische Fakultät, Prague, Austria, 1910; on the courtesy staff of St. Anthony Hospital; aged 60; died, January 20, of chronic myocarditis.

Myer Jerome Herschman & Washington, D. C.; George Washington University School of Medicine, Washington, 1917; member of the American Urological Association; aged 47; died, Nov. 15, 1941.

George Robert Norman, Tulsa, Okla.; Birmingham Medical College, 1911; member of the Oklahoma State Medical Association; served during World War I; aged 56; died, January 21, of aortitis.

Henry Peronneau Brown, Lynchburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1907; county coroner; aged 58; died, January 29, of shock following an automobile accident.

John B. Legnard, Houston, Texas; Northwestern University Medical School, Chicago, 1902; served during World Stranged 66; died, January 4, in the Hermann Hospital of coronary occlusion.

Huldah Davis Hurst, Lincoln, Neb.; Lincoln Medical College of Cotner University, 1905; aged 78; died, January 17, in the Medical and Surgical Hospital, San Antonio, Texas, ai coronary occlusion.

Harry Fleisher Rentschler, Reading, Pa.; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; aged 72; died, January 4, of angina pectoris.

William Givin Rhoten, Wooster, Ohio; Medical College of Ohio. Cincinnati, 1900; formerly health officer of Wayne County; aged 67; died in January in Massillon of chronic myocarditis.

Ora Alexander Johnson, Kansas City, Mo.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; aged 69; died, January 26, of coronary occlusion and carcinoma of the prostate.

Henry Bernard Hibbe Dubuque, Iowa; State University of Iowa College of Medicine, Iowa City, 1922; aged 50; died, January 24, in St. Clare Hospital, Monroe, Wis., of cirrhosis of the liver.

Louis George Cucinotta, Brooklyn; Tulane University of Louisiana School of Medicine, New Orleans, 1931; on the staff of St. John's Hospital; aged 37; died, January 17, of coronary thrombosis.

Mary Elizabeth Burns, Fitchburg, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1910; for many years school physician; aged 59; died, January 27, of coronary thrombosis.

Robert Reid Berry & Union, S. C.; Medico-Chirurgical College of Philadelphia, 1901; on the staff of the Wallace Thomson Hospital; aged 64; died, January 23, of coronary occlusion.

Harry Jarrett € Camden, N. J.; Jefferson Medical College of Philadelphia, 1887; aged 75; died, January 29, at his home in Moorestown of injuries received in an automobile accident.

Andrew Sargent, Hopkinsville, Ky.; Louisville Medical College, 1881 and 1883; formerly member of the city council and state legislature; aged 83; died, January 31, of diabetes mellitus.

Albert Franklin Adams, Reno, Nev.; Cooper Medical College, San Francisco, 1904; served during World War I; aged 62; died, January 16, of coronary occlusion and hypertension.

Levi E. Hinshaw, De Ruyter, N. Y.; Dunham Medical College. Chicago, 1902; formerly a lawyer; for many years health officer; aged 77; died, January 21, of pernicious anemia.

Merle S. Boyer, Philadelphia; Medico-Chirurgical College of Philadelphia, 1896; medical director of the National Accident and Health Insurance Company; aged 71; died, Dec. 10, 1011

George Westveer, Grand Rapids, Mich.; Physio-Medical College of Indiana, Indianapolis, 1898; aged 74; died, January 18, in St. Mary's Hospital of perforating ulcer of the stomach.

Warren Brodie De Jernett, Commerce, Texas; Bellevue Hospital Medical College, New York, 1883; aged 82; died, January 31, in a hospital at Dallas of cerebral hemorrhage.

Alton Bowie Reddick, Sylvania, Ga.; University of Georgia Medical Department, Augusta, 1911; aged 55; died, January 13, in Atlanta following an operation on the lung.

Eliel Grant Myrick, Fairfield, Iowa; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1904; aged 72; died. January 6, of myocardial insufficiency.

Columbus Huffaker, Chrisman, Ill.; University of Louisville (Ky.) Medical Department, 1905; aged 69; died, January 11, in a hospital at Kankakee of chronic myocarditis.

Leo J. Drozniakiewicz, Milwaukee; Milwaukee Medical College, 1907; member of the State Medical Society of Wisconsin; aged 60; January 20, of coronary thrombosis.

Hollie Bascum Wilson, Vicksburg, Miss.; Bellevue Hospital Medical College, New York, 1888; aged 82; died, January 10, of uremia and benign prostatic hypertrophy.

Lee Otis Vickery, Lena, Ill.; Loyola University School of Medicine, Chicago, 1919; member of the Illinois State Medical Society; aged 54; died, January 10, of uremia.

Warford Lash Nixon, Somerville, N. J.; Jefferson Medical College of Philadelphia, 1889; served during World War I; aged 74; died, January 20, of cerebral hemorrhage.

T. N. McMillan, Thomaston, Ala.; Medical College of Alabama, Mobile, 1895; aged 74; died, January 18, in the Paptist Hospital, Selma, of coronary thrombosis.

William F. Decker, Suffern, N. Y.; New York Homeopathic Medical College, New York, 1876; aged 86; died, January 25, in Newburgh of cerebral hemorrhage.

Gilbert Leonard Hagen, Minneapolis: Minneapolis College of Physicians and Surgeons, 1904; aged 83; died, January 27, of cardiac decompensation and hypertension.

James Oscar Hicks & Victoria, Texas; Kentucky School of Medicine, Louisville, 1906; aged 61; died, Dec. 31, 1941, in the Victoria Hospital of diabetes mellitus.

John A. Pollard, Lynchburg, Va.; University of Louisville (Ky.) Medical Department, 1894; aged 68; died, January 24, of mitral stenosis and coronary thrombosis.

Alfred H. Tickell, Nevada City, Calif.; Southern Medical College, Atlanta, Ga., 1891; member of the California Medical Association; aged 77; died, January 28.

George Mortimer Wetherell, Adrian, Mich.; Niagara University Medical Department, Buffalo, 1886; aged 84; died, January 3, of cerebral hemorrhage.

Benjamin Lawrence Brigham, Tacoma, Wash.; College of Physicians and Surgeons, Baltimore, 1880; aged 83; died, January 30, of cerebral hemorrhage.

William James Houck Newark, N. J.; Medico-Chirurgical College of Philadelphia, 1899; aged 75; died, January 27, of cerebral hemorrhage.

Palmer E. Brandon ⊕ Sioux Falls, S. D.; Northwestern University Medical School, Chicago, 1907; aged 64; died, January 21, of coronary thrombosis.

S. D. Smith, Byron, Ga.; College of Physicians and Surgeons, Baltimore, 1882; aged 85; died, January 3, in a hospital at Macon of bronchopneumonia.

Michael Joseph McAvoy, Baltimore; College of Physicians and Surgeons, Baltimore, 1900; aged 69; died, January 27, of cirrhosis of the liver.

Ocie Rush Peek, Hickory, Miss.; Mississippi Medical College, Meridian, 1907; aged 73; died, Dec. 17, 1941, in the Rush's Infirmary, Meridian.

Houston Rather, Dallas, Texas; Kentucky School of Medicine, Louisville, 1893; aged 80; died, January 15, in Los Angeles of arteriosclerosis.

Frank M. Gallagher & Columbus, Ohio; College of Physicians and Surgeons, Baltimore, 1901; aged 70; died, January 16, of coronary occlusion.

Paul Acberus Phillips, Springfield, S. C.; Bellevue Hospital Medical College, New York, 1891; aged 72; died, January 23, of heart disease.

John Wesley Moorer, Selma, Ala.; Meharry Medical College, Nashville, Tenn., 1899; aged 62; died, January 12, of cardiac decompensation.

Benjamin Hooke Anderson, Andersonburg, Pa.; Medico-Chirurgical College of Philadelphia, 1899; aged 74; died, January 8, of senility.

Henry John Hunter, Ilion, N. Y.; Baltimore University School of Medicine, 1890; aged 73; died, January 2, of cerebral hemorrhage.

Burwell Wilks Gunn, Maplewood, Mo.; Marion Sims College of Medicine, St. Louis, 1892; aged 78; died, January 30, of myocarditis.

Frank Beemer, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, 1884; aged 79; died, Dec. 12, 1941.

Abram C. Boice, Orange, Calif. (licensed in Indiana in 1897); aged 85; died, Dec. 29, 1941, of chronic myocarditis.

### DIED IN MILITARY SERVICE

Benjamin Franklin Norwood & Medical Director, Captain, U. S. Navy, New York; University of Tennessee College of Medicine, Memphis, 1912; entered the Navy Sept. 24, 1917; surgeon attached to the Naval Medical Supply Depot, Brooklyn; aged 50; died, January 12, of coronary thrombosis.

Adrian Collison Schoedel, Flushing, N. Y.; University and Bellevue Hospital Medical College, New York, 1934; member of the Medical Society of the State of New York; first lieutenant in the medical reserve corps of the United States Army, in the 3d Battalion, 18th Infantry, 1st Division, Fort Devens, Mass.; aged 32; was killed, February 17, in an automobile accident near Acton, Mass.

# Bureau of Investigation

# "MEDIEVAL RACK" STRETCHES THE TRUTH—NOT THE SPINE

# U. S. P. O. Department Catches Up with the Pandiculator

So-called spine stretchers, advertised to increase height, "rejuvenate" or perform some other miracle, are so obviously fraudulent that the Post Office Department has banned one after another from the mails for the protection of the public. One of the early ones to suffer this fate—as long ago as 1914—was "The Cartilage Invention," which was promoted from Rochester. N. Y., by some notorious swindlers whose other medical schemes also were scotched by the Post Office. Other similar devices have been exposed in these pages during the intervening years, including one put out by Clara Louisa Glover and "Bernard Bernard" (real name Trapschuh, himself a short person) from Sausalito. Calif. (see THE JOURNAL, July 6, 1929, p. 53). Another similar swindle was the "Stebbing System of Height Increase," originally promoted from London, England, but later from the United States, by Mrs. Daisy Stebbing, along with a "Beautipon Treatment" for putting on weight and the "Slimcream Method" of reducing.

The latest "spine stretcher" to be branded by the Post Office as a fraud is "The Pandiculator," although it thrived for over thirty years. As long ago as 1914, perhaps earlier, it was being advertised in magazines of the health fad type under such



A typical "Pandiculator" advertisement.

claims as "Grow Tall! Get Well! Be Young . . . No More Rheumatism or Sciatica . . . A Cure for Old Age. It will Increase the Length of the Human Body." Further, it was claimed to have "gained the unqualified approval of the foremost physicians of all schools." Perhaps this meant merely the osteopathic school, for the testimonial of Albert Thurlow Hunt, an Omaha osteopath who later moved to Los Angeles, was especially featured. He put out a preposterous device of his own under the high sounding name "Dr. Hunt's New Cervical Spine Relaxer." This was so obviously fakish that the Post Office debarred it from the mails by means of a fraud order, as detailed in The Journal, Dec. 27, 1941, page 2269.

The few doctors of medicine whom The Pandiculator Company of Cleveland cited as users and endorsers of its device were persons of low professional standing such as Albert Abrams and George Starr White, whose own medicomechanical fakes often have been exposed in these columns. The Pandiculator concern brazenly circularized doctors of medicine with such claims as "Progressive leaders of the medical profession have accepted Pandiculation without reservation . . . is no danger, no experimentation-Pandiculation is no theory. Practice has proved its merits and the medical profession has approved of its use. It is no fad or novelty which will evaporate over night." Nevertheless, the company deemed it expedient to call the device by different names according to the type of practitioner: "The Traction Couch for Physicians," "The Osteotractor for Osteopaths" and "The Chiro-tensor for Chiroprac-Nor were these various practitioners to have exclusive rights in employing it, for it was also played up "for home use by all the family." If there was any difference among these Pandiculators the theory and operation apparently were the

The Pandiculator was not cheap, at least in price, for a doctor of medicine who was solicited by form letter to purchase

one was told that it would cost him \$120—but then, the possession of it, he was informed, "opens the door of opportunity for you" and offered "an opportunity to take your place with leading members of your profession." "Inordinately gullible" would be the accurate substitution for "leading."

But Uncle Sam frequently is skeptical about promises that seem a bit too rosy. On May 29, 1941 the Post Office Department served notice on The Pandiculator Company of Cleveland and its officers to show cause on June 18 why a fraud order should not be issued against it. After the defendants had obtained several continuances the company's secretary, H. C. Crowell, and the firm's attorney appeared at the hearing finally held on August 6. At that time the government charged the Pandiculator Company with using the mails to promote its device by means of false and fraudulent pretenses, representations and promises to the effect that when used as directed it would prevent, overcome and cure "every conceivable condition and physical deficiency" including goiter, rheumatism, angina pectoris, pleurisy, asthma, tuberculosis, pneumonia, hay fever, ulcers, diabetes, Bright's disease, rupture, female disorders, locomotor ataxia and other ailments too numerous to catalogue here. All this regardless of the causes of these disorders or the failure of other methods of treatment to produce such results!

The hearing brought out that the Pandiculator Company was not a corporation in spite of its using the names of persons represented as its "officers"; that its sole owner was the person designated as "secretary," Henry C. Crowell, a Cleveland attorney; that Crowell had purchased the business in 1918 from a David B. Cropp and later had sold it to a Harry L. Spaulding, from whom he had bought it back in 1932, and that since then he had operated it for his sole use and benefit. According to his testimony approximately seven thousand Pandiculators had been sold to the public at prices ranging from \$25 to \$125. Some customers had purchased the device after assurance from the promoters that it would cure them of such diseases as tuberculosis, diabetes and arthritis. Some others had reported to the Post Office that the company neither filled their orders nor refunded their money, or, if it did the latter, it was only after complaint had been made to the Post Office.

According to other evidence presented, the Pandiculator sold to home users was a rectangular shaped box covered with fabrikoid. At the ends were T shaped iron posts, one of which was affixed to the box and the other to an adjustable bar which ran in under the box. To use the device a person had to recline on the box and attach his feet to the adjustable post and his head to the fixed post by means of straps which were part of the mechanism. Then, by turning a wheel on the side, which was attached to a cable threaded through a system of pulleys, the adjustable bar was extended and the body stretched.

An eminent orthopedic surgeon of Washington, D. C., who was called as an expert medical witness for the government testified that he had examined the Pandiculator and was familiar with its action and the effect it would have when used as directed; that this would be a stretching of the body but in only one direction, from head to foot; that spinal deformities caused by tuberculosis, syphilis, arthritis, rickets and infantile paralysis must be considered each on a separate and distinct basis in every instance; that although so-called traction therapy is sometimes used by orthopedists in treating certain diseases of the bones and joints, the direction and weight of the pull required in order to obtain beneficial results therefrom can be obtained only after a thorough examination of the patient by a competent practitioner; and that such examination frequently reveals that traction, even when indicated, must be exerted in an angular direction rather than in a straight line, as with the Pandiculator, and must be applied continuously rather than intermittently, as with this device. The witness also exposed the fallacy of some other representations made for the Pandiculator. The opposing witness was a chiropractor and naturopath.

The general worthlessness of the device for increasing height and curing or even benefiting the numerous ailments mentioned in the advertising was so apparent that a fraud order was issued on Dec. 8, 1941 debarring the Pandiculator Company and H. C. Crowell from the mails. Thus passes—it is hoped—a scheme that has swindled the credulous for many years.

## NEW NAMES FOR OLD SWINDLES

### Collecting Fraud Orders as a Hobby

Certain individuals against whom more than one Post Office Fraud Order has been issued were exposed under the above title in THE JOURNAL for March 7, 1942, p 837 Others of a similar ilk are presented herewith

"Prof " C A Isbell, Fred Mandeville, V L Mandeville and V L Davis -This department of THE JOURNAL, Sept 28, 1940, page 1118, dealt with fraud orders that the Post Office Department had issued against seven concerns for conducting medical swindles through the mails One of these was operated by a "Prof' C A Isbell of Colfax, Calif, who promoted "Isbell's Mineral" for such disorders as cancer, diabetes, pyorrhea, rheu And what matism, hemorrhoids, stomach ailments and venereal diseases was this alleged panacea? Just a mixture of iron and aluminum sulfates with minute amounts of silica, phosphate, calcium and potassium! Apparently reductant to relinquish a profitable piece of quickery, Isbell attempted to exade the fraud order by advising his customers and prospects to send no postal money orders but to remit by checks or express money orders addressed to Fred Mandeville at Colfax, Calif (Isbell's home town), or to V L Mandeville or V L Davis at Weimar, Calif But the Post Office again caught up with Isbell and on Feb 7, 1941, extended the 1940 fraud order to cover these Mandeville and Davis names

Tru-Science, Natur-Tabs Company and Wilbur Hanson—In THE JOURNAL Dec 28, 1940, page 2298, there was described in detail a case in which the Post Office Department closed the mails on May 28, 1940 to the Natur Food Company and its officers and agents at Kansas The article showed that this fraud order was supplemental to one that the Department had issued on Feb 1, 1940 against the National Diabetik Food Company, George H Keyes and R Randall for conducting a fraudulent mail order scheme in selling "National Diabetic Food' and a supplementary product, "National Mineral Ration" as an alleged 'diabetes cure" After the issuance of the first fraud order the Department discovered that the scheme was being conducted under the name Natur Food Company and hence found it necessary to issue an addi tional order Further, the article brought out that National Diabetic Food was a pulverized form of the weed saltbush, and its ash contained traces of calcium, iron phosphate, sodium, potassium and chloride. It was further shown that National Mineral Ration was essentially a mixture of minute amounts of epsom salt, calcium, iron, manganese, ammonia, carbonate, bicarbonate, sulfate, chloride and sulfur, with traces of iodides, bromides and possibly of copper, zinc and lithium. The article included the sum mary of this case by the Department's solicitor, Judge Vincent M. Miles, in which he said, in part, that although the name "Tru Science" also was used by this Kansas City outfit it did not seem necessary to include it in the fraud order against the Natur Food Company Not long afterward, however, the Post Office discovered that the swindle was still being promoted by George Keyes assisted by Thelma Randall, the daughter of his original partner, and that they were now operating under the names Tru Science, Natur Tabs Company and Wilbur Hanson, North Kansas City, Mo On May 23, 1941 the Post Office extended the earlier fraud orders to cover these last three names

The Health Educational Clinic, R L Fraser, The Clinic of Preparedness and Mildred Hagaman -From McCrory, Ark, Robert Lee Fraser, operated a mail order business under the high sounding title "The Health Educational Clinic, and sold something with the equally impressive name, "Heavy Vitamins." The Post Office Department charged that he promoted this nostrum under false and fraudulent pretenses representa tions and promises to the effect that when used as directed it would cure, colitis, eczema athlete's foot asthma lumbago, pyorrhea, diabetes, pneu monia, pro tate and bladder disorders, tuberculosis chronic appendicitis, venereal diseases and some other things, regardless of the cause or severity venereal diseases and some other things, regardless of the cause or severity of any of these conditions! And what was this cure all? According to a government chemist who analyzed it, Heavy Vitamias contained 9952 per cent by weight of sulfuric acid and 0005 grain per hundred cubic centimeters of mineral matter the remainder being water. The chemist further testified that he found no organic substances in the preparation Lypert medical evidence produced at the hearing showed that a solution living no organic substances could not contain vitamias, hormones or the amino-acids which Fraser claimed were present in Heavy Vitamias, in site of his testimony that the product contained all the foods necessary to sustain life, including twenty two aminosciels and a food necessary to sustain life, including twenty two aminosciels and a food necessary to sustain life, including twenty two aminosciels and a food necessary to sustain life, including twenty two aminosciels and a food necessary to sustain life, including twenty two aminosciels and a food necessary to sustain life, including twenty two aminosciels and a food necessary to sustain life, including them. in site of his testimony that the product contained all the foods necessary to sustain life, including twenty two ammoraids and a food for every gland in the body. Further, it was reported that Priser's testimony admitted that he had never personally examined any of the patients whose records he submitted to determine whether or not the alleged improvements in their condition were actual but that he had merely accepted their statements as being correct. As his various claims and representations were found to be unsubstantiated by scientific evidence, the Pest Office Department issued a fraud order on June 23, 1941 against the Health Educational Clinic Dr. R. I. Fraser as manager and founder and the officer and agents of his concern. Not long afterward the Post Office discovered that Priser had resumed his enterprise and was operative. Office discovered that I'raser had resumed his enterprise and was operating not only under his own name and that of the Health Educational Clinic, but also under two new trade styles the Clinic of Preparedness and Mildred Hagaman Secretary As a precaution however, he was sending his nostrum out through private express companies and explaining in his letters to customers that he could no longer mail Heav Vitamins but would have to ship the stuff he express "due to 5th Column interference through the posto" ice department. The second fraud order, issued against the two new trale styles that Fraser was using was issued Oct 28, 1941.

# Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in The Journal, March 28, page 1159

### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL ENAMINERS Parts I and II Venters, June 22 24 Part III Various centers June or July Sec, Mr Everett S Elwood 225 S 15th St, Philadelphia

#### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Oral Groups
A and B Cleveland, Jan 1415, 1943 Final date for filing application
is Dec 7 Written Various centers, Nov 16 Final date for filing application is Oct 5 Sec, Dr C Guy Lane, 416 Marlboro St, Boston
AMERICAN BOARD OF INTERNAL WEDICINE Oral St Paul, April, in advance of the meeting of the American College of Physicians and June, Philadelphia, in advance of the meeting of the American Medical Association Application should be on file 6 weeks in advance of the date of oral examination Written Oct 19 Final date for filing application is Sept 1 Sec, Dr William S Middleton, 1301 University Ave, Madison, Wis

is Sept 1 son, Wis

AMERICAN BOARD OF NEUROLOGICAL SURGERY Oral New York, May 12 13 See, Dr R Glen Spurling, 404 Brown Bidg, Louistille, Ky AMERICAN BOARD OF OPHTHALMOLOGY Oral Baltimore June 6 and Philadelphia, June 8 See, Dr John Green, 6830 Waterman Ave,

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Oral and Written Chicago, Jan 910 Final date for filing application is Nov 1 Sec, Dr Guy A Caldwell, 3503 Prytania St, New Orleans AMERICAN BOARD OF PEDIATRICS Written Locally, Sept 18 Oral Chicago Nov 23 Final date for filing application is July 1 Sec, Dr C A. Aldrich, 707 Fullerton Ave, Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York December Final date for filing application is Oct 1 Sec, Dr Walter Freeman, 1028 Connecticut Ave NW, Washington, DC

# Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

Contracts: Validity of Contract Restricting Right to Practice Optometry. - The plaintiff operated a number of jewelry stores throughout the state of New York and employed the defendant, a licensed optometrist, in the optical department of one of those stores The defendant's contract of employment, executed in February 1939, contained two specific covenants The first provided, in substance, that during his employment, or for one year thereafter, the defendant would not engage in any business that competed with the plaintiff within a radius of 10 miles of any city, town or village in which the plaintiff operated a store. The second restrained the defendant, during the same period of time, from divulging any of the plaintiff's trade secrets or soliciting the patronige of any of the plaintiff's customers On Jan 11, 1940 the defendant resigned from the plaintiff's employ, rather than be transferred to another town, and on Feb 1, 1940 he opened his own office for the practice of optometry in the town in which he had been employed by the plaintiff. The plaintiff therefore filed a suit in the supreme court, Broome County, N Y, to enjoin the defendant from breaching the aforementioned covenants

Contracts and agreements of this character, said the supreme court, have been enforced when they are not unduly harsh, unreasonable or inequitable. The court, however, held that the contract in this case was much broader in scope than was necessary to protect the plaintiff's interests. The contract in question assured the defendant neither a definite tenure of employment nor a definite wage. He could have been discharged the next day or his wages could have been substantially reduced. The plaintiff already operated stores in many places in the state and might in the future extend such activities to every sizable community. The result of this would be completely to eliminate the defendant from practicing optometry in the state of New York for one full year Such a result, concluded the court, was inequitable and would be disastrous to a young professional man. The court further held, however, that the provisions of the second restrictive covenant were fair and should be enforced. It would be most unreasonable, the court said, to allow the defendant to steal the plaintiff's customers through a knowledge of their identity gained by him as an employee. The court therefore held in effect that the defendant could maintain his private office but that he could not build up his practice by taking advantage of the acquaintanceships made during his prior employment by the plaintiff.—Rudolph Bros., Inc. v. Greulick, 21 N. Y. S. (2d) 971 (N. Y. 1940).

Poisoning: Lead Poisoning of Infant Attributed to Metallic Breast Shields.—The infant plaintiff was born in a New Jersey hospital on June 6, 1936. His mother obtained and used metallic lead nipple shields. Accompanying the shields was a circular describing the history of their development and stating, in part:

For the prevention and cure of sore implies these shields should be applied as soon after delivery as possible, and in using them the only attention required is to wipe the implie previously to musing and apply the shield again immediately afterwards. They are in no may likely to be injurious to the infant

The mother said that she used the shields until sometime in January 1937, always being careful thoroughly to wipe each breast with a boric acid solution before feeding the infant. In January the infant became violently ill and was removed to a hospital, where his condition was diagnosed as lead poisoning. In a subsequent suit for damages brought on behalf of the infant against the vendor of the shields, the complaint was dismissed by the supreme court, trial term, Kings County, New York.

The plaintiff argued that lead from the metallic shields was deposited in the fissures of the mother's sore breasts and that the ingestion of this lead by the infant over a period of months caused the infant's illness. The contention was that the nipple shields were not only inherently dangerous but were marketed without proper warning or instructions. The supreme court admitted that a person marketing inherently dangerous products must give fair and adequate warning or instructions to the using The evidence showed, however, that many thousands of these shields had been used, both in England and in the United States, for more than ninety years, but that in all that time only once had any member of the medical profession questioned the safety or efficiency of their use. That one occasion was in an article published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. May 15, 1926, in which reference was made to 2 cases. One of those cases, the court said, was hearsay and the other showed that the mother had been negligent in washing her nipples. In fact the article stated

Lead poisoning in nuising infants is extremely rare.... One cannot be certain that the nursing infants may not also have sucked lead from the skin or hair of the mothers, or carried it to their mouths on their hands.

... we have not found the use of lead nipple shields by nursing mothers previously demonstrated as a source of lead poisoning in infancy

The article also enumerated other sources of lead poisoning in infants of nursing age as glass nursing bottles containing lead; nursing bottle stoppers, both of metallic lead and of lead-containing rubber and lead frames in which nursing bottles are held; lead powders used by mothers as cosmetics, and inhalation of lead dust, lead paint from a doll and clothing material impregnated with lead. The court added that many persons are allergic to conditions which do not affect the normal individual and that, from the evidence, there was no way of determining whether or not the infant in this case was the subject of a peculiar hypersensitivity to the almost insignificant lead deposits on the mother's breasts.

The plaintiff was required to prove, first, that the injury resulted from lead ingested, even though the mother followed the directions accompanying the shields; second, that the shields were inherently dangerous and poisonous; and, third, that the defendant was negligent in marketing such dangerous and poisonous appliances. The court stated the general principle applicable to the sale of inherently dangerous products: "There must be knowledge of a danger, not merely possible, but probable." The evidence in this case, said the court, showed that

the metallic shields had been used by many thousands of persons and over a long period of time without resultant harm Neither the manufacturer nor the marketer had any knowledge or indication that the product was in any sense dangerous. Since the defendant knew of no dangers against which the public should have been warned, it was not negligent in putting such product on the market in the manner in which it did. A manufacturer, concluded the court, may not be charged with negligence where some unusual result occurs that cannot reasonably be foreseen and is not within the compass of reasonable probability. The court therefore held that the evidence failed to sustain the allegations of the complaint. Complaint dismissed and judgment for the defendant.—Cleary v. John M. Maris Co., 19 N. Y. S. (2d) 38 (N. Y., 1940).

Malpractice: Liability of Hospital for Negligent Acts of Nurse During Operation.-The patient submitted to a cystoscopy in the defendant hospital, a private noncharitable institution. When the physician was ready to perform the operation, he asked a nurse, employed by the defendant hospital and in charge of the operating room, for a 5 per cent solution of cocaine and informed her that there was a 10 per cent solution in the cabinet. The nurse prepared a solution and gave it to the defendant physician, who injected it into the patient's urethra preliminary to passing a catheter. The physician imme diately detected an unexpected reaction, and an examination of the bottle from which the solution was taken disclosed that it had contained sodium hydroxide instead of cocaine. Both solutions were colorless and odorless. As a result of the injection of sodium hydroxide, the patient suffered serious burns which developed into strictures. The patient died fifteen months later from other causes, but his executor filed suit in the supreme court, Nassau County, N Y., against both the physician and the hospital for damages allegedly caused by the injection. The jury returned a verdict in favor of the defendant physician and against the defendant hospital. The trial court, however, granted the hospital's motion to set aside the verdict and dismiss the plaintiff's complaint.

The general competence of the nurse was not questioned; not were there any suggestions that the hospital had been negligent in either hiring her or retaining her in its employ. The delendant hospital contended, however, that it was not responsible for the negligence of its nurse in the treatment of patients. A hospital, said the court, whether charitable or private, is immune from liability for the negligence of its doctors or nurses with respect to any matter relating to the patient's medical care and attention. In Schloendorff v. Society of New York Hespital, 211 N. Y. 125, 105 N. E. 92, the plaintiff sought to recour damages from the defendant hospital because of an unauthorized operation performed by members of the hospital staff. The court held that, in the performance of an operation, the physicianwere pursuing an independent calling and were not acting a agents of the hospital. The court then added "It is true, I think, of nurses, as of physicians, that, in treating a patient, they are not acting as the servants of the hospital" In the instant case the evidence clearly showed that at the time of her negligence the nurse was assisting the physician in the operating room and attempting to follow his directions and was not acting in the discharge of administrative duties to the hospital. Relying on the Schloendorff case, the supreme court said that actof preparation immediately preceding an operation are necessary to its successful performance and are really part of the operation itself. They are not different in that respect from the administration of the ether, the court continued, and whatever the nurse does in those preliminary stages is done, not as the servant of the hospital, but in the course of the treatment of the patient, as the delegate of the surgeon to whose orders she is subject. Accordingly the motion of the defendant hospital to dismiss the plaintiff's complaint was granted. This judgment was sub-equently affirmed by the supreme court, appellate division, second department.-Steinert v. The Brunswick Home, Inc., et al., P. N. Y. S. (2d) 83 (N. Y., 1030); 20 N. Y. S. (2d) 450 (N. Y. 1940).

# Society Proceedings

#### COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, Apr. 21 23. Dr. D. L. Cannon, 519 Devter Avenue, Montgomery, Secretary

American Association of Genito-Urinary Surgeons, Hershey, Pa, May 27-29 Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Cincinnati, Apr. 13 17. Dr. Edward C. Holmblad, 28 East Jackson Blvd, Chicago, Apr. 13 17. Dr. 20. Managing Director.

American Association of the History of Medicine, Atlantic City, N. J., May 35 Dr. Henry E Sigerist, 1900 East Monument St., Baltimore, Secretary.

American Association on Mental Deficiency, Boston, May 13 16 Dr. Neil A Dayton, 100 Nashua St., Boston, Secretary.

American College of Physicians, St. Paul. Apr. 2024 Mr. E. R. Loveland, 4200 Pine St., Philadelphia Executive Secretary.

American Federation for Chinical Research, Minneapolis, Apr. 20 21 Dr. Thomas M. Durant, 3401 North Broad St., Philadelphia, Secretary. May 25 27.

American Laryngological Association, Atlantic City, N. J., May 2: Dr. Charles J. Imperatori, 108 East 38th St., New York, Secretary Dr Isidore

American Otological Society, Atlantic City, N. J., May 28 29 Priesner, 101 East 73d St., New York, Secretary Dr Hugh

American Pediatric Society, Sky Top Pa, Apr 30 May 2 McCulloch, 325 North Euclid Ave, St Ious, Secretary

American Psychiatric Association, Boston, May 18 22 Dr Winfred Overholser, St Elizabeths Hospital, Washington, D C, Secretary

American Society for Clinical Investigation, Atlantic City, N. J., May 4. Dr. Eugene M. Landis, University of Virginia Hospital, Charlottesville, Va, Secretary.

American Surgical Association, New Orleans, Apr 68 Dr. Charles G Mixter, 319 Longwood Ave., Boston, Secretary.

Arizona State Medical Association, Prescott, May 25 30 Dr. W. Warner Watkins, 15 East Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Hot Springs National Park, Apr 27 W. R. Brooksher, 602 Garrison Ave, Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 56 Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary. California Medical Association, Del Monte, May 47. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.

Florida Medical Association, Palm Beach, Apr. 1315. Richardson, 111 West Adams St., Jacksonville, Secretary. Dr. Shaler

Georgia, Medical Association of, Augusta, Apr. 28 May 1 Shanks, 478 Peachtree St NE, Atlanta, Secretary. Dr. E D.

Illinois State Medical Society, Springfield, May 1921. Dr Haiold M. Camp, 224 South Main St, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, Apr. 15 17. Dr Robert L. Parker, 3510 Sixth Ave. Des Moines, Secretary.

Kansas Medical Society, Wichita, May 11-14 Mr. C G Munns, 112 West Sixth St, Topeka, Executive Secretary.

Louisiana State Medical Society, New Orleans, Apr. 27 29. Dr. P. T. Talbot, 1430 Tulane Ave, New Orleans, Secretary

Marviand, Medical and Chirurgical Faculty of, Baltimore, Apr. 28 30. Dr. Richard T. Shackelford, 1211 Cathedral St., Baltimore, Secretary. Massachusetts Medical Society, Boston, May 26 27 Dr Michael A. Tighe, 8 Fenway, Boston, Secretary

Medical Library Association, New Orleans, May 79 Miss Anna C. Holt, 25 Shattuck St , Boston, Secretary

Mississippi State Medical Association, Jackson, May 1214. Dr. T. M. Dye, P. O. Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, Apr. 27 29 Mr. E. H. Bartelsmeyer, 634 North Grand Blvd, St. Louis, Executive Secretary. Autional Tuberculosis Association, Philadelphia, May 69. Dr. Charles J. Hatfield, 1790 Broadway, New York, Secretary.

Nebraska State Medical Association, Omaha, May 47. Dr. R. B Adams, 416 Tederal Securities Bldg, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 1213 Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, Apr. 21 23. Dr. Alfred Stalil, 55 Lincoln Park, Newark, Secretary

New York, Medical Society of the State of, New York, Apr. 27 30 Dr. Peter Irving, 292 Madison Ave., New York, Secretary.

New York State Association of Public Health Laboratories, Cooperstown, May 18 Miss Mary B Kirkbride, New Scotland Ave., Albany, Sec-

retary. North Carolina Medical Society of the State of, Charlotte, May 11-13. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dikota State Medical Association, Jamestown, May 18 20 Dr. L. W. Larson, 221 Fifth St. Bismarck, Secretary.

Olio State Medical Association, Columbus, Apr. 28 30 Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.

79 East State St., Columbus, Executive Secretary.
Oklahoma State Medical Association, Tulsa, April 22 24. Mr R. H.
Graham, 210 Plaza Court Bldg., Oklahoma City, Executive Secretary.
Pacific Coast Oto Ophthalmological Society, Portland, Ore. May 11-14.
Dr. C. Allen Dickey, 450 Sutter St., San Francisco, Secretary.
South Carolina Medical Association, Martle Beach Max 19 21. Dr.
Julian P. Price, 103 West Cheves St., Florence, Secretary.

South Dakota State Medical Association, Sioux Falls, May 13 15. Dr. Clarence E Sherwood, 1071/2 Egan Avenue South, Madison, Secretary, Dr. Tennessee State Medical Association, Memphis, Apr. 1416 Shoulders, 706 Church St, Nashville, Secretary. Dr. H. H.

Texas, State Medical Association of, Houston, May 11 14. Dr. Holman Taylor, 1404 West El Paso St, Fort Worth, Secretary.

#### CENTRAL SOCIETY FOR CLINICAL RESEARCH

Fourteenth Annual Meeting, Held in Chicago, Not 7 and 8, 1941

The President, Dr. LAWRENCE D THOMPSON, St Louis, in the Chair

(Continued from page 1162)

#### Studies in Immunity to Influenza Virus and Hemolytic Streptococcus Infections

DRS. CHARLES A. DOAN, ORAM C. WOOLPERT, CESAR MERINO, JOHN SCHWAB, MARION BEARD and S. SASLAW, Columbus, Ohio: Schwab, Blubaugh and Woolpert in preliminary experiments, employing mice, observed a shorter survival period and a higher mortality rate in animals inoculated intranasally with mixtures of Streptococcus hemolyticus group C (Lancefield) and influenza virus A than in those receiving either agent alone. Recently Andrews and Glover have demonstrated conclusively the aerial transmission of a combined streptococcic-influenzal infection in ferrets

That more detailed analyses of the humoral and cellular reactions occurring under such conditions might be made, exploratory studies were begun some two years ago on Macaca mulatta monkeys. It has been found that an intranasal instillation of 10,000 mouse minimum lethal doses of influenza virus A is followed promptly by the appearance of a striking granulopenic leukopenia and that within eight to twelve days virus neutralizing antibodies may be demonstrated in the blood serum coincident with the reestablishment of the preinfection white cell equilibrium Fever, anemia, anorexia and positive blood cultures were not observed, and no fatalities occurred in cases of this mild, uncomplicated infection.

Parallel intranasal inoculations of 750,000,000 hemolytic streptococci of group C produced in normal monkeys an immediate characteristic polymorphonuclear leukocytosis, the white cells numbering 30,000 to 50,000 per cubic millimeter, fever, anorexia. gradual weight loss and progressive hemolytic anemia with reticulocytosis. Cultures from the throat remained positive for these organisms for variable periods. The opsonocytophagic index, precipitin and antistreptolysin titers remained unchanged. The cellular defenses, as reflected in the fluctuating granulocytosis, gradually prevailed, and coincident with the reestablishment of the preinfection equilibrium in the white cells the hemolytic streptococci disappeared from the throat and the temperature became normal Most significant of all, the anemia, which had been progressive up to this point, was reversed, and a spontaneous return to normal of the red cell and hemoglobin values promptly followed. All normal monkeys under optimum dietary conditions survived this initial infection with hemolytic streptococci

As might be anticipated, an occasional annual continued to harbor hemolytic streptococci in the throat. In such animals spontaneous clinical exacerbations occurred with the development of albuminuria, hematuria, edema and hypertension, with histologic evidence of renal pathologic conditions post mortem. In recovered monkeys reinoculation with the organism was accomplished three to five months after the original infection. In sharp contrast to the original reactions, no leukocytosis, and little or no fever or other constitutional manifestations of disease developed, but the opsonocytophagic index rose sharply within twenty-four hours, suggesting a greater individual acquired polymorphonuclear efficiency in dealing with the invaders

In other experiments the initial influenza virus infection was followed in four days and seventeen days respectively by superimposed hemolytic streptococcus infection. Usually the characteristic polymorphonuclear leukocytosis was observed in monkeys which had received the virus only four days previously, and survival was the rule.

In the others, however, the leukocytosis was completely inhibited, and in 1 animal (monkey 3) death followed within thirty-two days of the original virus infection and on the fifteenth day after the superimposed streptococcus inoculation, with generalized sepsis, as proved by repeated blood cultures and cultures of all organs post mortem.

When hemolytic streptococcus infection was followed by a superimposed virus inoculation at the same two arbitrary time intervals, the virus invasion, after the four day interval, was reflected either by transitory leukopenia (lasting twenty-four hours) or by delayed granulocytopenia (lasting ten to fifteen days) and the neutralizing antibodies were demonstrable as in the uncomplicated influenzal infections. When a seventeen day interval was permitted to elapse, usually all evidence of the streptococcic infection had disappeared and the influenzal reaction occurred with characteristic leukopenia, followed by appearance of neutralizing antibodies in the time relationships already described.

When influenza virus and hemolytic streptococci were instilled simultaneously into the nasal passages of normal monkeys, immediate leukocytosis developed and subsequently leukopenia suggestive of a delayed virus effect.

The relative mildness of the clinical manifestations, associated with the distinctive humoral and cellular reactions, which reflect invasion of mucous membrane by the agents employed, make the normal healthy, well nourished monkey an ideal medium for this type of study. Preliminary investigations with various deficient diets already indicate a materially altered resistance in terms of the factors here analyzed, with a corresponding alteration of clinical morbidity and mortality.

#### DISCUSSION

Dr. M. A. Blankenhorn, Cincinnati: I should like to ask Dr. Doan whether he has been able by the combination of these things to cause a definite pathologic picture in the lungs. In particular, has he been able to produce the pathologic picture seen in the lungs of patients who died in the epidemic of influenza of 1918 and thereabouts?

DR. C. A. DOAN, Columbus, Ohio: There has been 1 spontaneous death in this particular series. At autopsy the monkey showed pathologic changes in the lung suggestive of those seen in human bronchopneumonia. We have been interested in following the lung fields, both clinically and roentgenographically, in the surviving monkeys, but there has been no evidence significant of gross pathologic changes in the lung. This does not mean that there might not be microscopic histologic changes; that remains to be seen. Because of the scarcity of monkeys we have not yet deliberately killed animals at various stages during the humoral and cellular reactions for tissue studies. Such observations are currently being made. The monkey seems to be more resistant to clinical influenza of type A than the human being and is much more resistant than ferrets and mice. Judging solely from the clinical manifestations, there is no evidence for invasion by the virus at all. It is only by following the peripheral blood cell and blood serologic changes from day to day that one may obtain indirect evidence of invasion. There have been negative reports heretofore, based on clinical data alone, of infection by the influenza virus in monkeys.

# The Coagulase Test for Staphylococci

DR. WESLEY W. SPINK and JEAN JERMSTA, B.A., Minneapolis: Several in vitro tests for determining pathogenicity of staphylococci have been developed in the past. The simplest and most satisfactory clinical method is the coagulase test. An intensive study of seventy strains of staphylococci in the past three years reveals that the coagulase positive strains resist the bactericidal action of human blood. This correlation is remarkably constant. Our studies indicate that serious infections and invasion of the blood stream are due to coagulase positive strains with important exceptions that will be discussed. In 2 instances

invasion of the blood stream by coagulase negative Staphylococcus albus strains resulted in death because of the localization of the organisms on the heart valves and the establishment of subacute bacterial endocarditis.

#### Thermal Effect of Renal Extracts on Guinea Pigs

Joseph Zichis, Ph.D., and Drs. Maurice Wald, Morris E. Thomas and M. Herbert Barker, Chicago: In the preparation and study of renal tissue extracts (Page and his co-workers) a rapid method of assay is urgently needed. When young guinea pigs weighing from 140 to 200 Gm. are inoculated intraperitoneally with 1 to 2 cc. of a clinically active renal extract severe hypothermia results. The hypothermic reaction appears in one to two hours, the greatest temperature fall, of 4 to 10 degrees Fahrenheit, being reached in four to eight hours, and return to normal occurs in twenty-four to thirty-six hours. In addition some of the animals have shown a shocklike reaction. Ten per cent die within twenty-four hours. Inactivated renal extracts, serums and other tissue extracts fail to show this characteristic hypothermic reaction.

In dogs with experimental hypertension, produced by wrapping the kidneys in silk, who present the picture of the malignant stage (blood pressure over 200 mm., detached retinas, listlessness, toxicity and inability to eat or drink), the administration of active extracts greatly improves the general condition. The appetite returns, the dogs move about their cages and the retina shows varying degrees of improvement, with and occasionally without notable falls of the blood pressure.

Patients exhibiting the signs and symptoms of so-called malignant hypertension treated with active renal extracts often show more improvement in their symptoms than fall in the blood pressure. The order of improvement is generally that the headaches disappear, there is a general feeling of well-being, the gallop rhythm of the heart subsides and the retinas clear of hemorrhages, exudate and papilledema. It should be stated that the average fall in systolic blood pressure ranges from 30 to 50 mm. of mercury and the diastolic 15 to 30 mm. Patients with benign or essential hypertension show a more decided fall in blood pressure associated with the disappearance of the headaches, vertigo, dyspnea, constipation and fatigability.

The hypothermic reaction has been correlated with the symptomatic improvement and a decrease in the blood pressure in both experimental animals and patients. Extracts which have produced a sharp drop in temperature in guinea pigs have regularly shown moderate to considerable clinical effect. Extracts which have produced no or slight response of the temperature have shown little or no therapeutic benefit. It is hoped that this or some similar simple test can be found to facilitate the purifying of the hypotensive factor in renal tissue extracts

# Effect on Cardiac Output of Renal Extracts

DRS. ROBERT D. TAYLOR and IRVINE H. PAGE, Indianapolis: Ballistocardiographic observations of the cardiac output were made on 15 hypertensive patients before and after treatment with extracts of kidneys ("angiotonin inhibitor") and on normal human subjects before and after administration of angiotonin, tyramine and methylguanidine sulfate.

When arterial pressure was reduced in hypertensive patients the cardiac output increased roughly 15 to 20 per cent. When extract was withdrawn and the arterial pressure rose the cardiac output decreased to its former level.

Hypertension induced in normal persons by tyramine and methylguanidine was accompanied by highly unpleasant symptoms, whereas that from angiotonin was not. The stroke volume was increased with tyramine, but coincident bradycardia reduced cardiac output. Methylguanidine produced slight bradycardia, reduced stroke volume and cardiac output. Angiotonin, on the other hand, produced little change in pulse rate and considerable reduction in stroke volume and cardiac output.

The results add evidence in favor of the view that the angiotonin-angiotonin inhibitor system plays a part in the genesis of human arterial hypertension.

# The Use of Kidney Extract in Controlling Experimental Renal Hypertension and Essential Hypertension

Drs. Francis D. Murphy, John Grill, G. P. Langenfeld, L. J. Kurten and V. G. Guenther, Milwaukee: A kidney extract has been prepared from pork kidneys according to a method described by Page. It has been used to treat 11 patients with essential hypertension and rats with experimental renal hypertension. The results obtained were as follows: Seven of the 11 patients responded satisfactorily, 2 were resistant and 2 were symptomatically improved without a corresponding drop in blood pressure. All the patients had either premalignant or malignant forms of essential hypertension.

The unfavorable features have been the local and the general reactions. The local type, although painful, is not dangerous. There are two kinds of general reactions: the anaphylactic-like type, and the more dangerous kind that is associated with a sharp fall in blood pressure and peripheral vascular collapse.

Rats made hypertensive by Page's method were used for control of the extract before it was injected into patients.

#### DISCUSSION ON RENAL EXTRACTS

Dr. Emmet B. Bay, Chicago: I should like to ask Dr. Taylor how the calculations on cardiac output from ballistocardiographic records are made with special reference to the underlying formula to which Starr has referred, i. e. that f = m a, an old-time physical equation. I can see how m in the equation could represent output if it can be separated from a, which represents acceleration. In the presence of a lowered diastolic blood pressure the emptying time of the ventricle might be decreased, and would not this as well as the increased output increase the a of acceleration? Is this taken into account in the calculations? These records probably show improvement in circulatory dynamics, whether or not one can say anything more than that.

DR. GEORGE E. WAKERLIN, Chicago: It is highly desirable to have a shorter method of assaying antipressor extracts than the present one involving the use of dogs, rabbits or rats with renal hypertension. Perhaps the method reported by Dr. Zichis and his co-workers is the one investigators are looking for. This procedure may be similar in principle to the frog method for digitalis. Digitalis assay in the frog, of course, involves the production of a toxic effect, which is essentially an exaggerated therapeutic response, by large doses of the drug. Obviously, more work is necessary before the method proposed can be finally evaluated. The finding of Drs. Taylor and Page that angiotonin decreased the cardiac output in normotensive human beings is most interesting. In view of the well known fact that the cardiac output is within normal limits in essential hypertension, how can the action of angiotonin on the cardiac output in human normotension be adduced as evidence for a pathogenic role for angiotonin in essential hypertension? Did Dr. Murphy and his co-workers control the possible nonspecific effect of the kidney extract in their experiments by treating a group of hypertensive patients with a similarly prepared extract of hog tissue other than the kidney?

Dr. Henry N. Harkins, Detroit: I was interested in the side effects of one of the extracts mentioned by Dr. Zichis and Dr. Langenfeld, namely the local reactions, shock and death after injections in guinea pigs. Was the peritoneal fluid of the guinea pigs that died increased in amount, and if so was it a protein-like fluid or merely a watery transudate? Some years ago the late Dr. Andrews and I showed that a number of substances, among them bile and bile salts, if injected into the peritoneal cavity in large amounts would cause a local weeping of plasma-like fluid with resultant secondary shock. The shock described by Dr. Zichis might be such a local reaction or it might be caused by the general effects of the fluid after absorption.

Dr. Francis D. Murphy, Milwaukee: As to the cases reported by Dr. Langenfeld, I believe it should be emphasized once more that the patients had had hypertension for a long time before we used the kidney extract; so I do not believe

we were fooled in our interpretation by the old post hoc ergo propter hoc argument. In our cases malignant hypertension failed to respond satisfactorily to treatment, while Dr. Page and his associates have reported favorable results in some of their cases of malignant hypertension. This difference may be explained by the fact that so-called malignant hypertension may occur in some patients who have had long-standing hypertension and well developed renal arteriosclerosis, while in others the malignant syndrome may be engrafted on a fairly normal kidney to begin with. It seems to me that there would be a distinct difference as far as treatment with renal extract is concerned in these two sets of cases. I do not wish to offer these cases as proof that kidney extract is a cure or that it solves the problem of therapeutics in essential hypertension. After using this extract, crude as it is, for about a year, we obtained satisfactory results in about 75 per cent of the cases. When a purer extract is produced a higher percentage of favorable responses is anticipated.

Dr. Louis N. Katz, Chicago: The question has been raised whether the ballistocardiograph is a suitable recorder of cardiac output. When Dr. Starr first described this method it did not appear to be sufficiently accurate, but more recent work has convinced me that it can give information of the output of the heart by the methods suggested by Dr. Starr. However, it should not be used for individual cases but rather for a statistical handling of a large series. With regard to the report by Dr. Murphy and his collaborators, I should like to point out that at present the extract of the kidney which has been employed requires large quantities of kidney. It is therefore not practical. Why cannot something be done to improve the manner of extracting so that a better yield can be obtained? Only when this is accomplished will the method have possibilities for widespread clinical use.

DR. PAUL STARR, Chicago: The authors conclude that the extract which lowers the blood pressure is one that benefits the patient. Is it necessarily true that lowering the blood pressure will lengthen the life of the patient?

DR. MORRIS THOMAS, Chicago: In our work with the kidney extract we found considerable symptomatic improvement. In most of the cases there has been a fall in the blood pressure. That is true in cases of malignant hypertension. The indications of improvement have been the disappearance of headaches, improvement in the general feeling of well-being, disappearance of gallop rhythm and clearing of the hemorrhagic exudates previously present in the eyes. There have been no remissions unless the extract was withdrawn. Recently we have been working with benign or simple hypertension, and we have noted in the patients a much greater fall in blood pressure. In 1 with severe essential hypertension the blood pressure was reduced to 145 systolic and 90 diastolic, but with withdrawal of the extract the pressure rose in a few days to 206 to 220 systolic and 120 to 140 diastolic.

Dr. IRVINE H. PAGE, Indianapolis: All the kidney extracts which have been employed are crude. The question to be determined is whether there is an active depressor substance in them. With regard to Dr. Starr's question, it has long been thought on the basis of a teleologic explanation that elevation of the blood pressure is a desirable thing. Perhaps it is under certain circumstances, but on the whole the evidence points strongly the other way. We became convinced that the blood pressure could be lowered profoundly without the evidence of peripheral tissue anoxia. On the whole, clinical improvement seemed to follow reduction in blood pressure resulting from surgical operations, thiocyanate therapy or spontaneous reduction. Reduction of the arterial pressure in a hypertensive patient is desirable, not undesirable. It should be stressed especially that renal insufficiency does not occur even when the blood pressure falls sharply. The fear that it will occur appears unjustified. Measurement of the urea clearance following reduction of the blood pressure by a number of means showed beyond doubt that there was no gross over-all reduction in renal efficiency, but the interpretation of the urea clearance is complex;

hence it is necessary to resort to methods which give a more exact picture of the intrarenal hemodynamic changes. The insulin and diodrast clearances, as developed by Smith, Corcoran and Alving, will demonstrate such changes. The pathologic change which seems characteristic of the hypertension of most patients is constriction of the efferent glomerular arterioles with some reduction in total renal blood flow. The interesting fact demonstrated by Corcoran is that kidney extract causes relaxation of the efferent arterioles both in experimentally hypertensive animals and in human beings with hypertension along with a moderate increase in blood flow. As Corcoran and I have emphasized, the actual blood flow through the kidney is the result of two opposing factors: (1) the mean systemic arterial pressure working against (2) the effective resistance of the flow of blood through the kidney; thus if the resistance in the kidney is lowered at the same rate at which the mean arterial pressure is lowered there should be no increase in the renal blood flow. But such a direct proportionality is seldom seen with the administration of kidney extract, with the result that some increase occurs in blood flow along with relaxation of the efferent arterioles and fall in the systemic mean pressure. These observations suggest a certain degree of specificity in the kidney extract; I fully recognize the danger of using the term specificity. There is only scant evidence at present which suggests specificity, but, on the other hand, there is nothing against the notion that has so far been discovered which suggests that these extracts when properly prepared are not specific. The most obvious objection to the results obtained from study of the kidney is that the changes might be due to pyrogenic reactions. Pyrogens have been shown by Smith to cause an intrarenal hemodynamic change somewhat similar to that produced by kidney extract. Actually, thermal reactions have occurred in only a few patients. It seems unlikely that the changes could have been the result of pyrogenic reaction. Dr. Taylor has told you of the effect on the cardiac output. Again, this evidence might be taken to indicate the presence in kidney extract of a substance which is at least unusual in its action. The increase in the cardiac output which follows the reduction in the blood pressure is in some ways just the reverse of what one might anticipate. Perhaps one of the most dramatic effects of kidney extract is that on the eyegrounds. The reversal of the pathologic changes is often complete. Such reversal never occurs in malignant hypertension with the exception of hypertension concomitant with toxemia of pregnancy. I think one could say categorically that, whatever the nature of the kidney extract, its effect, direct or indirect, on the eyegrounds is remarkable. This emphasizes a point which I wish to make, namely that both Dr. Murphy's and our patients have for the most part had far advanced malignant hypertension. We have purposely chosen them because of the clarity with which objective evidences of the disease could be followed and because of the experimental nature of the work. We have not attempted to select patients who might give the best results, nor have we selected the extracts which give the best results. In general, it appears that when the renal function, as measured by diodrast Tm, is below 20 from the therapeutic point of view, giving kidney extract is hardly worth while. One could hardly expect to reverse the morbid process in kidneys so badly damaged, and keeping the patient alive is hardly more than a tour de force. I should like to point out that the preparation of these extracts is a question not so much of the difficult procedures involved as of the impurity of the end product and the poor yield. We are forced to work entirely empirically and up to recent months have had to depend on assay on hypertensive dogs and rats. Recently we have come to employ a test which determines the destruction of angiotonin and which we hope will facilitate assay greatly. Apparently the destruction of angiotonin and the lowering of blood pressure go hand in hand. I have had no personal experience with Dr. Zichis's test. I hope it will prove reliable because it would be an enormous time saver if it did. I do not consider the administration of kidney extract a practical treatment for hypertension at present. Whether it will become practical depends on future research, which is altogether

unpredictable. Whether it proves practical or not it will open another avenue of approach to the difficult problem of hypertension. If the extracts contain substances with therapeutic activity more will be known about them in the course of time. But let me emphasize that if these are merely interesting substances which are found by more exacting testing to have no therapeutic effect then the search for them will have been a lot of fun; it is only when one enjoys one's research that it seems worth doing.

JOSEPH ZICHIS, PH.D., Chicago: I did not ordinarily observe the evidence of fluid concentration. After the guinea pig died all the material seemed to be absorbed, and we have not encountered peritonitis at all.

Dr. ROBERT D. TAYLOR, Indianapolis: Dr. Katz helped me a good deal. The formula used was devised by Dr. Starr and published by him. He checked this method with the acctylene and ethyl iodide methods and found it to be within reasonable limits of accuracy in determining cardiac output. As for the decrease in cardiac output produced by angiotonin in normal persons, one must not forget that the experiments were with acute disease and the output cannot be compared with the state seen in chronic hypertension, which, as is well known is usually normal. In hypertensive patients there is usually cardiac hypertrophy. In our patients we noted that those who had little or no cardiac hypertrophy had a low normal or a subnormal cardiac output, while those whose hearts were hypertrophied had an output in the high normal range. It may well be that the cardiac output in hypertension is maintained at a normal level by adaptative cardiac hypertrophy. In measuring cardiac output with the ballistocardiograph we noted some interesting changes in the tracings themselves. Over the past two years Dr. Isaac Starr has correlated various heart diseases with the tracings produced by the ballistocardiograph. Among the changes he has described is the "early M" complex usually seen in hypertension. This is produced by elevation of the normal H wave and shortening of the normal Hl segment. These alterations combined with normal J and K waves produce a capital M. We have noted that angiotonin produces this in normal persons whereas tyramine and methylguanidine sulfate do not, and further that hypertensive patients treated with antipressor renal extracts produce tracings that compare to normal ones. Since both the ballistocardiographic and the renal hemodynamic changes of hypertension are mimicked by the action of angiotonin and, in patients with hypertension, reversed toward the normal by administration of antipressor renal extracts, a pathogenic role of angiotonin in hypertension seems not unlikely, and the specificity of these extracts is further confirmed.

DR. G. P. LANGENFELD, Milwaukee: The only question that has not been discussed is whether other tissue has been extracted or injected as a control. We have not used any other tissue in this way. The only one used has been kidney tissue.

# The Localization of Human Bundle Branch Block

DRS. W. C. BUCHBINDER and FRANK NEUWELT, Chicago: The simultaneous registration of the arterial pulse wave (brachial) by the Hamilton manometer and the electrocardiogram was secured on 37 patients having intraventricular block with a QRS complex of 0.12 second or more. The time difference between the onset of mechanical ejection of the left ventricle and the electrical systole (QE interval) was determined for the 37 and for 20 patients without block who served as controls. The patients with intraventricular block were then separated into functional groups: (1) those having a normal QE interval and (2) those showing an interval prolonged by nearly 50 per cent. Each group shows distinctive electrocardiographic patterns. In the first, QRS, was chiefly down or an S wave was present; in the second, QRS, was up. The data presented are pertinent to localization of human bundle branch block lesions and are in accordance with the current views localizing the common type in the left bundle system and the uncommon or the one showing an St in the right bundle system

# Current Medical Literature

#### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

#### Alabama State Medical Assn. Journal, Montgomery 11:181-216 (Dec.) 1941

X-Ray Therapy: Indications in Everyday Practice. W. D. Anderson, Tuscaloosa,-n. 181,

Management of Esophageal Strictures. G. T. Johnson, Mobile .- p. 186. Traumatic Rupture of Bladder and Urethra: Surgical Management.
J. M. Townsend, Birmingham.—p. 188.
Vitamin Therapy in Relation to Dermatology. R. P. Lester, Mobile.

-p. 190.

Pneumothorax in the Home. K. N. Joseph, Birmingham .- p. 197. Modern Treatment of Sinal Disease. E. R. Nodine, Andalusia.-p. 199.

#### 11:217-260 (Jan.) 1942

*Thymol Therapy in Tuberculosis: Preliminary Report. H. B. Searcy, R. McBurney, Tuscaloosa, and H. S. Rowe, Mount Vernon.—p. 217. Pathologic Lesions in Macula and Area Centralis. K. B. Benkwith, Montgomery.-p. 221.

Management of Third Stage of Labor. T. B. Woods, Dothan.-p. 226.

Error and Delay in Diagnosis of Hydronephrosis. E. C. Coats, Florence. **—**р. 230.

Thymol in Tuberculosis. - Searcy and his co-workers administered 0.3 Gm. of thymol three times a day in the treatment of advanced pulmonary tuberculosis among 6 uncooperative patients. The thymol was given after each regular meal with a glass of whole milk to facilitate absorption. After seven weeks of therapy the patients had improved to such a degree that the daily dose was reduced to 0.3 Gm. given twice a day. During treatment there was no change of environment or of the dietary regimen. After nine weeks of treatment none of the patients had experienced any ill effects from the therapy. The authors realize that their clinical material is meager and that not enough time has elapsed to permit definite conclusions, but they believe that the improvement in their 6 patients is too uniform to be a coincidence. They suggest that the beneficial effect of thymol therapy in fungous disease warrants further study of the use of thymol, thymol combinations and derivatives in the mycobacterial diseases, i. e. tuberculosis and leprosy.

#### American Journal of Clinical Pathology, Baltimore 11:849-910 (Dec.) 1941

Behavior of Plasma Prothrombin in Pneumonia. L. M. Tocantins and

W. A. Hause, Philadelphia.—p. 849.

Classification of Staphylococci. Emma S. Moss, Gretchen Vitter Squires and Anne C. Pitts, New Orleans.—p. 857.

Primary Carcinoma of Fallopian Tube. J. A. Tuta and W. A. Stuhr,

Chicago.-p. 864.

Basal Metabolic Rate in Low Grade Chronic Illness: Statistical Analysis

of 166 Cases. M. II. Stiles, Philadelphia,—p. 871.
Relationship of "True Luschka Ducts," Adenomas and Aberrant Liver
Tissue in Wall of Human Gallbladder, E. T. Thorsness, Denver. p. \$78.

P. Gross, F. B. Cooper and M. L. Hagan, Pittsburgh, -p. 882.

Apocrine Sweat Gland Carcinoma of Vulva. J. R. McDonald, Rochester, Minn .- p. 890.

Basal Metabolism in Chronic Illness.-Stiles determined the basal metabolic rate of 166 persons with low grade chronic illnesses probably secondary to chronic infection. A low rate was the rule. The mean for the 166 persons was -8. Of these persons 83 per cent had a rate of 0 or below, and 43 per cent had a rate of -10 or less. Persons with moderately severe and severe symptoms of chronic illness had a significantly lower basal metabolic rate than did those with mild symptoms.

# American Journal of Diseases of Children, Chicago 63:1-216 (Jan.) 1942

Cardiae Signs in Rheumatic Infection in Childhood. Rachel Ash, Phila-

delphia .- p. 1. Salmonella Suipestifer Infections in Childhood. D. Gajzágó aud O. Göttche, Budapest, Hungary.—p. 15.
Loneliness in Infants. H. Bakwin, New York.—p. 30.

Meningitis Due to Escherichia Coli: Report of Two Cases with Recovery Following Chemotherapy, Review of Literature and Report of Experimental Studies. G. S. Barrett, C. H. Rammelkamp and J. Worcester, Boston .- p. 41.

*Hypertension and Pyelonephritis of Children. G. C. Kimmel, Rochester,

Hypertension and Pyelonephritis of Children. G. C. Kimmer, Rochestry, Minn.—p. 60.
Myatonia Congenita (Oppenheim) Accompanied by Congenital Intraspinal Tumor, Developmental Retardation and Malformation. F. H. Lewey, Philadelphia.—p. 76.
Dermatitis Due to "Antiseptic Oils." J. H. Lapin, New York.—p. 89.
Apparatus for Determination of Vital Capacity of Infants. H. M. Smith, S. McLanahan Jr., Baltimore, and W. C. Davison, Durham, N. C.—p. 92.
The Hyperactive Child. J. A. Russell, Washington, D. C.—p. 94.

A. C.—p. 92.

The Hyperactive Child. J. A. Russell, Washington, D. C.—p. 94.

Francis Home, M.D.: The Scottish Military Surgeon Who First Discovered Diphtheria. E. E. Hume, Carlisle Barracks, Pa.—p. 140.

Developmental Enamel Defects: Clinical Descriptions and Classification.

B. G. Anderson, New Haven, Conn.—p. 154.

Hypertension and Pyelonephritis.-Kimmel reviewed the records of 510 children aged 2 months to 15 years who had pyogenic renal disease. Pathologic processes were demonstrated in 91 by urographic examination, at necropsy or at examination of a removed kidney. The group was further studied to determine in how many elevation of the blood pressure was present. For 33 of the children with unilateral renal lesions nephrectomy was performed, for 35 with unilateral renal lesions nephrectomy was not performed and in 23 the renal lesions were bilateral. Blood pressure was considered normal if it was less than 120 mm. of mercury systolic and 80 mm. diastolic, regardless of age. Of the first group of patients the blood pressure on admission in 1 was 138 systolic and 88 diastolic and four years later was 110 systolic and 60 diastolic; in 1 before operation it was 170 to 210 systolic and 140 to 166 diastolic and seven months after nephrectomy was 104 systolic and 74 diastolic. In 1 of the second group of patients on initial examination it was, respectively, 160 and 118 and 148 and 110 three years after an apparent cure after treatment with a ketogenic diet; in 1 on admission it was 148 and 90 and 120 and 80 two days after a nephrostomy on the left side; in 1 on admission it was 172 and 140 and nine months later after several dilations of the right ureter it dropped to 134 mm. systolic; and in 1 it was 200 and 170 soon after admission, and after a bilateral resection of the splanchnic nerve it dropped to 180 and 130. In 1 patient of the third group the blood pressure was 126 and 94 on admission, and five years later, after resection of the presacral nerve and resistance to methenamine and ammonium chloride, it was 142 and 98; in 1 on admission it was 142 and 104, and five years after a suprapubic cystostomy and a sphincterotomy it was 106 and 72; in 1 on admission it was 230 and 170, and after the patient had been five days in bed it was 160 and 120. The last patient died more than a year after dismissal. The age on admission of the 8 patients with hypertension varied from 7 to 14 years. In 3 of the 8, one atrophic kidney was present. In only 2 of the 8 was the level of urea in the blood elevated. Arteriolosclerosis was present in seventeen of the thirty-three pyelonephritic kidneys removed at operation. The view that renal ischemia may clevate the blood pressure in human beings seems to be suggested. Hypertension associated with chronic pyelonephritis in children apparently is not rare.

# American Journal of Ophthalmology, Cincinnati 25:1-134 (Jan.) 1942

Microanatomy of Eye with Slit Lamp Microscope: II. Comparative Anatomy of Ciliary Body, Zonula and Related Structures in Mammalia. M. U. Troncoso, New York.—p. 1.

Aqueous Veins: Preliminary Note. K. W. Ascher, Cincinnati.—p. 31.

Early Diagnosis of Choroidal Melanomas. B. Rones, Washington, D. C.

p. 39.

Familial Incidence of Retinoblastoma with Genealogic Chart. II. F.

Falls, Ann Arbor, Mich.—p., 42.
Conjunctivechalasis. W. L. Hughes, Hempstead, N. Y.—p. 48.
Ophthalmia Neonaterum: Etiology in Sixty Two Consecutive Cases,
S. H. McKee, Montreal, Canada.—p. 52.
Sulfathiarole in Treatment of Gonorrheal Eye Disease. C. R. Mullen, Philadelphia.-p. 59.

Clinical Photography, with Special Reference to Photography of Anterior Segment of Eye. D. W. Bogart, New York, -p. 62.

# American Journal of Pathology, Ann Arbor, Mich. 18:1-168 (Jan) 1942

Sclerosing Hemangiomas of Central Nervous System Progressive Tis sue Changes in Hemangioblastomas of Brain and in So Called Angio

blastic Meningiomas O T Buley and R Ford, Boston—p 1

Production of Cardiac and Renal Lesions in Rats by Diet Extremely
Deficient in Potassium R H Follis Jr, Elsa Orent Keiles and

E V McCollum, Baltimore—p 29

Deposition of Calcium in Hearts and Kidneys of Rats in Relation to Age, Source of Calcium, Evercise and Diet L L Barnes, Ithaca, N Y—p 41

Pathologic Changes in Nutritional Gastritis in Rats B N Berg, New York Day 100 Pathologic Changes in Nutritional Castritis in Rats B N Berg, New York Day 200

York --- p 49

Distribution of Intimal Atheromatous Lesions in Arteries of Rabbits on

High Cholesterol Diets S L Wilens, New York—p 63

Pathology of Christek Piralysis in Foxes Counterpart of Wernicke's Hemorrhagic Polioencephalitis of Man C A Evans W E Carlson and R G Green, Minneapolis—p 79

Intercapillary Glomerulosclerosis R C Horn Jr and H Smetana,

New York -p 93

Glomerulonephritis in Partially Nephrectomized Rats Relation to Ad istration of Sulfapyridine P Gross F B Cooper and W Morningstar, Pittsburgh —p 101 Relation to Admin

*Interstitud Myocarditis Following Clinical and Experimental Use of Sulfonamide Drugs A J French and C V Weller, Ann Arbor, Mich -p 109

*Bronchingenic Carcinoma in Association with Pulmonary Asbestosis Report of Two Cases H B Holleb and A Angrist Jamaica N Y -p 123

Secondary Carcinoma in Citthosis of Liver J R Lisa, C Solomon J Gordon New York -p 137

Neuroblastoma, Ganglioneuroma and Tibroneuroma in Stillborn Tetus

Edith L Potter and J M Parrish Chicago —p 141
Icterus of Adult Brain Report of Case Enid K Rutledge and K T
Neubuerger, Denver—p 153

Bilateral Fusiform Aneurysms of Cervical Portion of Internal Carotid

Arteries J G Riddler New Orleans —p 159

Trypm Blue Vital Staining in Studies of Virus Lesions on Chorio allantoic Membranes Jean V Cooke and R J Blattner, St Louis **—**р 163

Myocarditis Following Chemotherapy. - French and Weller state that, during the last four years, interstitial myocarditis with eosinophilic cellular infiltration was occasionally encountered at necropsy at the University Hospital Study revealed that medication during the terminal illness with one or more of the sulfonamide drugs was the only common factor Survey of the necropsy material (1,706 patients) for 1937 to 1941 revealed that 283 patients had been given one or more of the drugs during the last few weeks of life In 126 of these patients significant interstitial myocarditis was present age of the patients varied from 1 month to 87 years amount of the drug (administered over a few hours to several months before death) which apparently produced significant infiltration varied from 5 Gm to more than 200 Gm Interstitial myocarditis was not present in any patient who had not received chemotherapy for at least thirty days prior to death No macroscopic changes attributable to the sulfonamide therapy were observed in the affected hearts The microscopic features of the lesion included interstitial myocarditis, usually with a paravascular and sometimes also with a diffuse distribution of the cellular infiltrations Both ventricles and auricles were widely involved The looser auricular myocardium often exhibited a heavier paravascular infiltration than did the compact ventricular muscle Some foci were likewise seen in the The cellular infiltrations contained large monoepicardium nuclear cells of clasmatocytic type and numerous cells with granulai eosinophilic cytoplasm Except for the acidophilic cytoplasm, some of the eosmophils resembled plasma cells Eosinophilic infiltrations were occasionally observed in the liver, lungs and kidneys In some instances the bone marrow, spleen and lymph nodes showed a relative increase in eosmophils Similar eosinophilic interstitial myocarditis was produced in mice and rats receiving daily intraperitoneal injections of the sulfonamide drugs The eosinophilic character of the infiltrations makes idiosyncrasy to the drugs seem likely. The lesions were not irreversible. Nevertheless, it is impossible to evaluate the effect that such a lesion might have on the heart of a person seriously ill from some other pathologic condition Therefore, during therapy the efficiency of the cardiovascular system should be determined at frequent intervals. The authors stress the need of keeping patients who are receiving these drugs under the closest clinical scrutiny and warn that the amount and the duration of therapy should not exceed the amount and duration consistent with beneficial results

Bronchiogenic Carcinoma and Pulmonary Asbestosis -Holleb and Angrist report 2 cases of bronchiogenic carcinoma associated with pulmonary asbestosis. An attempt to demon strate unusual amounts of silica in the lungs was unsuccessful 240 mg was present in the lungs of the first patient and 45 mg in those of the second per hundred cubic centimeters of tissue The silica content in the first patient was only slightly elevated, while that in the other one definitely fell within known nonpathologic limits Therefore the diagnosis of pulmonary asbestosis must rest on (1) a history of pro longed exposure to the dust (twenty-five years for each patient), (2) the presence of a productive cough in 1 and of cough and severe exertional dyspnea without cardiac disease in the other and (3) evidence of asbestosis diffuse interstitial pulmonary fibrosis, asbestosis bodies, macrophages and giant cells Inhaled asbestos fiber undergoes dissolution and phagocytosis and may eventually disappear, but it leaves behind irreparable damage As both patients were employed for a long time in an occupa tion in which the exposure to asbestos dust was relatively low it is concervable that extensive damage could result as a sum mation effect without an appreciable accumulation of asbestos in the lung

# American Journal of Psychiatry, New York 98:317-474 (Nov) 1941 Partial Index

The Military Psychiatrist at Work W C Porter, Washington D C ~р 317

*Clinical Differentiation of Senile and Arteriosclerotic Psychoses
D Rothschild, Foxborough, Mass-p 324

D Rothschild, Foxborough, Mass—p 324
*Encephalopathia Alcoholica Evaluation of Vitamin Therapy N Johnstein and H Wortis New York—p 340
Incidence and Significance of Alcoholism in History of Criminals M Geneva Gray and M Moore, Boston—p 347
Brain Metabolism VIII Effects of Electric Shock and Some Newer Drugs S M Wortis, D Shaskan, D Impastato and R Almansi New York—p 354
Insulin Convulsions Method of Prevention J P Frostig, San Francisco, C R Bennett, Camarillo Calif, J Schreiber, Stockton Calif, and G F Thomas, Camarillo Calif—p 369
Follow Up Results in Insulin Shock Therapy After One to Three Years

Follow Up Results in Insulin Shock Therapy After One to Three Years

T D Rivers and E D Bond, Philadelphia —p 382
Vitamin B₁ Requirement During Insulin Shock Therapy

W Goldfarb

W Goldfarb

and K M Bowman, New York—p 393

Treatment of Childhood Schizophrenia by Metrazol Shock Modified by B Erythroidin Frances Cottington, New York—p 397.

Effect of Convulsive Treatment on Memory Irene Sherman, J Mergener

and D Levitin, Chicago -p 401
Electroencepholograms of Manic Depressive Patients Pauline A Davis

Boston -p 430

Mental Disorder in One of a Pair of Identical Twins G E Hobbs London, Ont Canada—p 447
Psychiatric Observations on Children with Abdominal Pain J P Lambert, Katonah N Y—p 451

Senile and Arteriosclerotic Psychoses -Rothschild differentiates the two psychoses, seen in 60 cases, as follows Senile psychosis tended to occur at a later age and was apt to last longer than arteriosclerotic psychosis. The course of the former was gradually progressive and of the latter sudden, and the illness was sometimes brief and stormy Intellectual impair ment was generally more pronounced in senile condition-Depressive and hypochondriac symptoms were often observed in arteriosclerotic disease but seldom in senile disorders Paranoil forms of senile psychosis resembled arteriosclerotic psychosis in that the intellectual functions were usually well preserved, but outspoken and chronic paranoid syndromes were not encountered in arteriosclerotic disease Headache, dizziness and apoplecti form phenomena were observed in arteriosclerotic patients Other characteristics were syncope, convulsions, explosive emo tional outbursts and clinical indications of cardiac disturbance Peripheral (radial) sclerosis and hypertension were observed with equal frequency in the two psychoses Anatomically pure forms of each psychosis occurred less often than mixtures (f the two processes, but clinically a mixed psychosis was not nearly as frequent A diagnosis of senile or arteriosclerotic disease, especially of the latter, is made too often A toxic of a symptomatic psychosis is a common source of error

Alcoholic Encephalopathy .- Jolliffe and Wortis craliate results of nutritional and vitamin studies in delirium tremen, the Korsakoff psychosis, Wernicke's syndrome and the var 200 cerebral disorders due to deficiency of meotinic acid Dietary insufficiency as observed in chronic alcoholism is stre sed. The effect of alcohol by itself has still to be evaluated Vi'a therapy, to be effective, must be instituted before irrever

structural changes occur. As in diseases of vitamin deficiency from other causes, those affecting the nervous system are usually the result of multiple rather than single deficiencies. Therefore a well balanced diet should supplement treatment with the specifically indicated vitamin or vitamins. Not all patients with the "encephalopathic syndrome" present the usual cutaneous and oral lesions associated with pellagra. Therefore it was assumed that the syndrome represents an acute complete nicotinic acid deficiency which sets in so rapidly that the structural changes characteristic of pellagra do not have time to develop. Patients with the syndrome who were treated by hydration or by hydration and with thiamine hydrochloride almost invariably died (95 per cent). Only half of those treated by hydration and with concentrates rich in the vitamin B complex died, but since such patients have been treated by hydration and with nicotinic acid the mortality has fallen to 15 per cent.

#### Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill. 46:765-918 (Dec.) 1941

Roentgen Kymography in Constrictive Pericarditis. L. G. Rigler, O. H. Wangensteen and H. L. Friedell, Minneapolis.—p. 765.

Attempt at Clinical Evaluation of Roentgen Kymography: Short Perspective Based on Six Years' Study. W. G. Scott, St. Louis.—p. 778.

Evaluation of Roentgen Kymogram in Study of Diseases of Heart and Great Vessels. M. M. Friedman, New York.—p. 784.

Cardiac Roentgenology: Value of Exact Cardiac Measurements. A. H. Clagett Jr., Wilmington, Del.—p. 794.

Roentgenographic Features of Perforated Interlobar Abscess (Interlobar Empyema). B. Copleman, Perth Amboy, N. J., and H. Neuhof, New York.—p. 798.

Pulmonary Manifestations of Azotemia. R. A. Rendich, A. H. Levy

Pulmonary Manifestations of Azotemia. R. A. Rendich, A. H. Levy and A. M. Cove, Brooklyn .-- p. 802.

and A. M. Cove, Brooklyn.—p. 802.

Neuroblastoma and Its Roentgen Diagnosis: Report of Eight Cases.

L. K. Chont, Oklahoma City.—p. 809.

Hodgkin's Disease Involving Stomach: Report of Two Cases. E. C. Koenig and G. J. Culver, Buffalo.—p. 827.

Intussusception: Report of Unusual Adult Case. A. X. Rossien, Kew Gardens, N. Y.—p. 832.

Structural Deformities of Spine Following Bilateral Laminectomy.

T. Horwitz, Philadelphia.—p. 836.

Total Congenital Absence of Tibia. J. J. Nutt and E. E. Smith, New York.—p. 841.

York .- p. 841.

*Treatment of Malignant Tumors of Testis. G. W. Chamberlin and J. H.

*Treatment of Malignant Tumors of Testis. G. W. Chamberin and J. H. Jamison, Philadelphia.—p. 850. Effect of Vitamin B Complex Deficiency on Gastric Emptying and Small Intestinal Motility. G. W. Heublein, W. D. Thompson Jr. and J. P. Scully, Philadelphia.—p. 856.

*Bt. Avitaminosis: Roentgenologic Studies of Gastrointestinal Tract in Rats on Vitamin B1 Deficiency Diets. J. Gershon-Cohen, H. Shay and S. S. Fels, Philadelphia.—p. 876.

Treatment of Malignant Tumors of Testis,-Chamberlin and Jamison state that malignant testicular tumors are not common; 45 were observed between December 1916 and December 1938 at the roentgen department of the University of Pennsylvania. The youngest patient was 18 and the oldest 74. For the purpose of irradiation these tumors are divided into radiosensitive and radioresistant types. Eleven of 12 patients who received irradiation followed by orchiectomy are living and well, as are 9 of 16 who had orchiectomy followed by irradiation and 3 of 17 who presented clinical evidence of abdominal metastasis when first seen. The patients who died did so within an average of twenty-four months after they were first seen. The proposed therapy for a patient with a primary testicular tumor is prompt diagnosis (by the aid of studies of the gonadotropic substance in the urine, excretory urograms and roentgen study of the tumor and chest) and preoperative irradiation over the lymphatics in the abdomen and then over the tumor. The response of the lesion to irradiation is sometimes a reliable diagnostic sign. If the tumor regresses orchiectomy should be done in a few weeks, and the chest and the supraclavicular region should be irradiated after the operation.

B1 Avitaminosis.-Gershon-Cohen and his colleagues determined whether the intestinal motor activity is diminished in the rat by partial vitamin B, deficiency. After a sufficient interval of fasting measured quantities of a water-barium sulfate meal were introduced into the animal's stomach. The gastrointestinal motility of 8 normal animals varied. The stomach usually emptied in two hours (after a 3 cc. water-barium sulfate meal), but the time varied from one to three hours. The head of the column usually reached the cecum in four hours, but the time required varied from three to five hours. The colon was usually emptied in twenty-four hours. A decrease in the gastrointestinal motility was apparent within one month in the

8 rats fed a diet completely deficient in vitamin B, and after a longer period in those fed only partially deficient diets. The diets produced varying grades of atonicity and dilatation of the entire gastrointestinal tract. The changes observed are not accounted for by the mere loss of weight that occurred in the animals.

#### Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis 26:1-132 (Jan.) 1942

Titration of Traces of Reagin: Technic of Flocculation Using Maximal Serum Proportions with Secondary Recovery of Antigen. H. Lund, Boston .- p. 1.

Infectiousness of Semen of Rabbits with Late Syphilis. J. E. Kemp, Baltimore.—p. 16. *Management of Neurosyphilis. B. Dattner and E. W. Thomas, New

York.—p. 21.

Report of Cooperative Plan for Rapid Appraisal of Chemotherapy of Gonorrhea in Male. O. F. Cox, Boston; Lida J. Usilton and R. W.

Women. J. F. Mahoney, *Culture hayer, Staten Island, N. Y.,

C. J. and A Use of in Treatment of Gonococcic Urethritis in Male. P. R. Leberman, D. S. Pepper and C. M. Nor-

Comparison of Mediums and Laboratory Results in Gonococcus Cultures.
C. J. Van Slyke, J. D. Thayer and J. F. Mahoney, Staten Island, N. Y.—p. 55.
Oral Administration of Arsphenamine and Neoarsphenamine in Treathers.

ment of Experimental Syphilis of Rabbits. J. A. Kolmer, H. Brown

and Anna M. Rule, Philadelphia.—p. 63.

Congenital Syphilis: Statistical Study, with Special Regard to Sex Incidence. U. J. Wile and L. K. Mundt, Ann Arbor, Mich.—p. 70.

*Bismuth Stomatitis and Albuminuria: Report of Six Cases. E. E. Peters, Baltimore.—p. 84.

Distribution of Radioactive Arsenic in Normal and Tumor-Bearing (Brown-Pearce) Rabbit. Octavia du Pont, I. Ariel and S. L. Warren, Rochester, N. Y .- p. 96.

Management of Neurosyphilis .- Dattner and Thomas believe that in the treatment of syphilis it is less important to determine the sites affected than it is to determine the activity of the process and the kind of treatment that will check further progress. The clinical syndrome may be misleading; the most accurate information is to be obtained by a thorough examination of the spinal fluid. A positive Wassermann reaction of the spinal fluid in patients with untreated syphilis and with negative results of other tests does not prove activity. When a positive Wassermann reaction is associated with an increase in the number of cells or in the protein content of the spinal fluid, activity must be assumed. If there are no more than 3 or 4 cells per cubic millimeter of spinal fluid and the protein content is definitely decreased six months after treatment has been discontinued, the activity of the neurosyphilitic process has in all probability been checked permanently, although years may be required before the complement fixation and colloidal tests give negative results. A combination of chemotherapy and fever (malaria) therapy is the most effective treatment for all active neurosyphilis. Limiting the paroxysms of malarial fever to eight or nine reduces the danger of complications. Fever enhances the therapeutic effect of specific drugs and protects against their toxic action. The continued use of pentavalent or trivalent arsenicals after fever therapy is not necessary for most patients. Weekly injections following fever therapy should not be continued for more than six months unless there is an increase of cells and protein in the spinal fluid. If an increase does not occur, a rest period of six months is advised, after which another examination of the spinal fluid should establish whether the process has been checked permanently. The authors reduce the length of chemotherapy following fever to ten days by giving ten daily injections of 0.06 Gm. of mapharsen, Insufficient time has elapsed for a reliable evaluation, but so far study of the spinal fluid six months after all treatment was discontinued has proved most satisfactory.

Culture Studies in Chronic Gonorrhea.-Mahoncy and his collaborators examined cervical secretions of 2,429 women of the prostitute class, of 73 untreated women with clinical evidence of gonorrhea and initially positive cultures and the pooled cervical and/or urethral secretions of 56 women to determine the efficacy of the cultural method for isolating the gonococcus. Most of the 2,429 women had varying degrees of cervicitis which might commonly be considered the result of gonococcic infection. A single culture of the cervical secretion revealed positive results in approximately 21 per cent. For each of the 73 patients at least ten and usually twenty culture plates were used prior to the patient's release from custody. The cultures of 46 per cent remained positive throughout the study of three or four months; the cultures of the cervical secretion of 42 per cent remained positive for one or more observations and then abruptly or sometimes gradually they became negative and remained so during the remainder of the observation period; 12 per cent had characteristically positive cultures followed by numerous consecutive negative cultures and subsequently by one or more positive cultures occurring sporadically during the observation period. The pooled material of all the 56 patients showed the gonococcus, the cervical secretions of 53 and the urethral secretions of 23. A second cultural study was carried out on the secretions of 604 patients. A comparison of the results indicates that approximately one sixth of the patients whose original cultures were negative had positive cultures when the secretions were reexamined. Originally positive cultures were confirmed by reculture for only three fourths of the patients. The authors conclude that it may be unwise to withhold treatment from women solely on the basis of a negative culture when clinical and epidemiologic evidence of infection exists.

Bismuth Stomatitis and Albuminuria.-Peters states that the true incidence of the association of bismuth nephrosis or albuminuria with severe ulcerative stomatitis cannot be determined from the 6 cases recorded in the files of the Johns Hopkins Hospital. This is due partly to the failure in these cases to classify routinely the mild reactions to bismuth therapy and partly to the fact that when one complication was observed no attention may have been paid to the presence or the absence of the other one. In addition to the 6 patients who were hospitalized because of the severity of their complication, there were 7 with a similar but mild complication who were treated as outpatients. The work of Corson, Decker and Williams indicates that bismuth is mobilized by the administration of ammonium chloride. Peters suggests that it is probable that acidosis from any cause will lead to a mobilization of bismuth from the skeletal, muscular and visceral depots. That this may be possible is indicated by the test performed on 5 of the 6 patients who showed a lowered carbon dioxide combining power during the stomatitis and nephrosis. Bismuth should be administered cautiously to patients susceptible to acidosis, for example to patients with diabetes, previous renal damage, intercurrent infections, impaired food intake or retention and heart disease when ammonium chloride is given for its diuretic action. The acidosis which may result may cause bismuth to be mobilized to the extent of producing toxic phenomena.

# Annals of Otol., Rhin. and Laryngology, St. Louis 50:979-1292 (Dec.) 1941. Partial Index

Leonardo da Vinci's Contribution to Laryngology, Rhinology and Phonetics, C. J. Imperatori, New York,—p. 979.

Choice of Treatment of Cancer in Otolaryngology, T. C. Galloway,

Evanston, Ill .- p. 1018.

Evanston, III.—p. 1018.

Functional Pattern of Autonomic Nervous System. D. Higbee, San Diego, Calif.—p. 1047.

Use of Preserved Human Cartilage in Reconstructive Facial Surgery.

S. Iglauer, Cincinnati.—p. 1072.

Relation of Geriatrics to Otolaryngology. J. A. Babbitt, Philadelphia.
—p. 1079.

Role of Nutrition in Industrial Hugiene. Aggregation Production

Role of Nutrition in Industrial Hygiene. Agnes Fay Morgan, Berkeley,

Calif.-p. 1114. of Masticator Space. C. Hall and F. Morris, Los Angeles.

-р. 1123. Otolaryngology from Immunologic Viewpoint. F. J. Novak Jr., Chicago,

-р. 1134.

Further Modifications of Nasal Contact Test for Allergy. W. T. Vaughan and V. J. Derbes, Richmond, Va.-p. 1141.
Post-Traumatic Syndrome of Head Injury. H. A. Brown, San Francisco.-p. 1152.

cisco.—p. 1152.

Prophylaxis and Treatment of Common Cold, with Special Reference to Respiratory Vaccine. C. A. Veasey Jr., Spokane, Wash.—p. 1168.

*Chemotherapy and Serotherapy of Acute Otifis Media. R. N. Ganz, C. Lyons and C. F. Ferguson, Boston.—p. 1185.

Skin Reaction Controlled Low Dosage Method of Treatment with Staphylococcus Toxoid: Its Use in Certain Type of Acute Recurrent Rhimitis: Five Year Clinical Study of 394 Cases. K. E. Townsend,

Detroit.-p. 1189.
Experimental and Clinical Study of Common Cold. I. G. Spiesman, Maywood, Ill .- p. 1204.

Chemotherapy and Serotherapy for Otitis Media .-According to Ganz and his associates, the early treatment of acute otitis media with myringotomy and sulfonamide derivatives supplemented with immune serum for patients who were not clinically convalescent within forty-eight hours prevented "surgical" mastoiditis in 40 patients with hemolytic streptococcus or pneumococcic infections. Experience for more than one year in more patients is necessary for a critical evaluation of the method, but the regimen appears most promising. Chemotherapy was continued, often in reduced doses, for three weeks for all patients.

# Archives of Internal Medicine, Chicago 69:1-164 (Jan.) 1942

Type Specific Antibodies in Blood of Patients with Pneumococcic Pneumonia: Detection, Incidence, Prognostic Significance and Relation to Therapies. J. G. M. Bullowa, P. F. de Gara and S. C. Bukantz, New York,—p. 1.

Effect of Estrogen on Utilization of Vitamin B Complex. J. Ashworth

and D. C. Sutton, Chicago.—p. 15.

Orthostatic Circulatory Insufficiency: Its Occurrence in Tabes Dorsalis and Addison's Disease. C. L. Spingarn and W. M. Hitzig, New York .- p. 23.

Goiter with Associated Myasthenia Gravis: Report of Three Cases of Exophthalmic Goiter and One Case of Adenomatous Goiter with Hyperthyroidism. G. F. Kowallis, S. F. Haines and J. deJ. Pemberton, Rochester, Minn.—p. 41.

*Intravenous Use of Sodium Sulfadiazine in Treatment of Pneumococcic Pneumonia. A. H. Domni, H. F. Flippin, J. G. Reinhold and L. Schwartz, Philadelphia.—p. 51.

Infectious Neurontis: Review of Literature and Presentation of Four Cases. M. J. Fox and R. D. O'Connor, Milwaukee,—p. 58.
*Serum Proteins in Cirrhosis of Liver: I. Relation to Prognosis and to Formation of Ascites. J. Post and A. J. Patek Jr., New York. p. 67.

Id.: 11. Nitrogen Balance Studies on Five Patients. J. Post and A. J. Patek Jr., New York.—p. 83.
Torula Meningitis. W. N. Warvi and R. W. Rawson, Boston.—p. 90.

Absorption of Intracutaneously Injected Solutions of Dextrose and Sodium Chloride: Comparison of Absorption Times for Diabetic and for Non-diabetic Subjects N. Para China

diabetic Subjects. M. Berg, Chicago.—p. 99.

*Prolonged Survival After Perforation of Infarcted Interventicular Septum in Coronary Arterial Disease. S. E. Moolten, New York p. 108.

Primary Portal Phlebosclerosis. N. E. Reich, Brooklyn, -p. 117. Allergy: Review of Literature of 1941. F. M. Rackemann, Boston.p. 128.

Goiter and Myasthenia Gravis .- According to Kowallis and his collaborators, subtotal thyroidectomy alleviated the symptoms of 1 of 4 patients with hyperthyroidism and myasthenia gravis of the bulbar type. When the two diseases coexist, either may easily be overlooked. The response to prostigmine of the patient with myasthenia gravis is an important diagnostic aid. Iodine may be administered as an aid in the diagnosis of exophthalmic goiter; however, in their patients its effect was not consistent. Its characteristic effect on exophthalmic goiter might not be obtained when untreated myasthenia gravis coexists. The basal metabolic rate, which is not elevated in the patient with uncomplicated myasthenia gravis, may be informative. Pathologically, both exophthalmic goiler and myasthenia gravis are associated with significant involve-ment of the thymus. The most favored theory of the origin of muscular weakness in myasthenia gravis suggests faulty transmission of nerve impulses due to a defect at the myoneural junction. When exophthalmic goiter and myasthenia gravis coexist, the goiter may precipitate the myasthenia in a patient with a latent tendency toward its development. Another, but less likely, possibility is that exophthalmic goiter may rarely produce muscular disturbances identical with those of myasthenia gravis. The prognosis for patients with the tuo diseases is grave, particularly if the myasthenia is of the bulbar Thyroidectomy for exophthalmic goiter complicated by myasthenia gravis offers certain difficulties. The patient must be able to dispose of tracheal mucus. In the instance reported by the authors, preoperative treatment with prostigmine resulted in sufficient improvement in muscular strength for them to feel no concern in this regard.

Sodium Sulfadiazine for Pneumococcic Pneumonia... Domm and his associates gave 25 consecutive patients with pneumococcic pneumonia sodium sulfadiazine intravenously. Oi the 25, 4 who represented extremely poor therapeutic risks died. There was no significant difference between the mortality with a dose of 2 Gm. given every twelve hours and that with 3 Gm. The results were comparable to those obtained by oral therapy with sulfadiazine. The administration of sodium sulfadiazine intravenously is to be used not as a routine but only when oral therapy is impracticable or impossible.

Serum Protein in Cirrhosis of Liver .- Post and Patek determined the albumin-globulin ratio of 61 and the nitrogen balance of 5 hospitalized patients with cirrhosis of the liver Of the 61 patients, 54 had an abnormal albumin globulin ratio on admission The prognosis as to duration of life became increasingly grave as the level of serum albumin decreased The level of the serum globulin and the value for total protems in the serum had no such bearing Clinical improvement was associated with a rise in the serum albumin level toward normal In patients who failed to improve there was no sustained rise The level of serum albumin was significantly lower in patients with ascites than in those without ascites. Diuresis was associated with a rise in serum albumin. The mean value for serum albumin at which diuresis occurred was 31 Gm per hundred cubic centimeters. The nitrogen balance studies of the 5 patients revealed that although the patients remained in positive nitrogen balance during periods of high protein feeding there was no correlated rise in the level of the serum albumin The data indicate that patients with cirrhosis of the liver absorb and retain food protein and that the mechanism for the synthesis of serum albumin is impaired

Survival After Perforation of Infarcted Septum -Moolten reports a case of survival for sixteen weeks after perforation of an infarcted interventricular septum in coronary atterial disease. During the twelve weeks after admission to the hospital (four weeks after the perforation) evidence of fa lure of the right side of the heart increased, despite treatment with digitalis and mercurial diuretics. From this case and a review of the histories of 3 similar ones the author concludes that the interventricular septum as a functional entity is of particular significance as a component of deep muscle tracts common to the two ventricles and as an agency for protecting the right ventricle by preserving the differential in pressure between the two ventricles

# Canadian Medical Association Journal, Montreal 46·1-110 (Jan) 1942

Nutrition in Pregnancy J H Ebbs W A Scott, F F Tisdall Winifred J Movle and Marjorie Bell Toronto—p 1

*Influence of Improved Prenatal Nutrition on the Infant J H Ebbs A Brown F F Tisdall Winifred J Moyle and Marjorie Bell Toronto—p 6

*Surgical Kidnes as Etiologic Factor in Hypertension W F Bransch Minn-p 9 Rochester

*Intracranal Use of Sulfadiazine Experimental Study of Histology and Rate of Absorption E F Hurteau Montreal—p 15

Closed Plaster Treatment of Recent Mastoid Wounds Montreal -p 18

Inoureal—p 18

I ower Uterine Segment Anatomic Changes During Pregnancy and I abor P J Kearns Montreal—p 19

Bacteriology of Recently Inflicted Wounds with Special Reference to Hemolytic Streptococci and Staphylococci R Hare and Reba F Willits Toronto—p 23

Method of Vaccine Therapy in Atrophic Arthritis F T Cadham Winnipeg Man—p 31

Character and Coincidence of Retinal Hemorrhages Occurring in Dia betes F T Tooke and I \ V Aicholls Montreal—p 35 Pre ent Status of Cyclopropane R M Tovell and C B Hickor Hart ford Conn-p 41

Cit Bite Wound Infection 1 E Allın I ort William Ont -p 48

* Verodyma U J Gareau Regin Sisk -p 1 Review of Medical Boards R W I Urquiart Toronto -p 54 Canada's Supply of Army Doctors W I Deadman Hamilton, Ont

Resistance to Insulin E Lozinski and I I Frohlich Montreal -p 62

Antepartum Nutrition - According to Ebbs and his associates, the infant mortality in Toronto has been reduced about 40 per cent in twelve years since indigent mothers have had their usual diet supplemented with milk, eggs, oranges, cheese, tomatoes, a wheat germ preparation and viosterol during their preg-The number of premature deliveries, miscarriages and stillbirths has been reduced and the general health of the newborn infants during the first six months of life has been singufarly improved. The principles of nutrition are never more important than during pregnanci

Surgical Kidney as Etiologic Factor in Hypertension. -From a review of the cases of hypertension observed at the Mayo Clinic Bransch concludes that a unilateral non-nephritic, or 'surgical, lesion of the kidney is not a frequent cause of hypertension and that the incidence of such lesions among patients with hypertension who are amenable to operation is

less than 1 per cent The removal of the unilateral renal lesion will often relieve hypertension A urogram indicating deformity in the urinary tract does not necessarily mean that the renal lesion is an etiologic factor of the hypertension Furthei urologic examination is necessary for an exact interpretation There is no specific renal lesion in hypertension. The essential factor is apparently an intrarenal vascular imbalance which permits the secretion of pressor substances The renal lesion in hypertension most often amenable to surgical treatment is chronically unilateral, diffuse, atrophic or postoperative pyelonephritis The deciding factor in the presence of secondary infection is not the degree of infection but the consequent lesions in the renal parenchyma which cause intrarenal secretion of pressor substances Hypertension was observed less frequently with renal tuberculosis than as an accompaniment of other forms of surgical kidney Bilateral renal involvement was not an etiologic factor in hypertension A follow-up study of 198 patients who were operated on revealed that the blood pressure of 65 became and remained normal for a year or more

Intracranial Use of Sulfadiazine.—Hurteau observed in 9 cats that the local application to a cerebral wound of several drugs of the sulfonamide group resulted in different rates of absorption The rate was determined by extraction and chemical analysis Sulfanilamide was absorbed most rapidly, sulfathiazole second and sulfadiazine third, and sulfapyridine was absorbed the least rapidly. Sulfadiazine when in contact with meninges or cerebral parenchymia caused no neuronal destruction and no glial reaction and only a negligible foreign body reaction in the meninges Sulfadiazine exercised no untoward effect on the final result of wound healing

Acrodynia —Gareau reports 75 cases of acrodynia encountered in nine years 17 from cities, 17 from smaller centers and 41 from farms, 30 were in males and 45 in females. The incidence was highest from December to June The average age at onset was a little more than 11 months There was a family history of acrodynia in four families, one family having had 3 children with the disease and three families having had 2 each Two families lost a child each from complications Most parents dated the onset of illness to some antecedent illness The most frequent complaints were fretfulness, irritability and unhappiness, loss of ability to sit, stand and walk, sore eyes, loss of weight, sleeplessness and rash, while the least frequent complaints were profuse sweating, loss of teeth and fever Four patients died (1 from bronchopneumonia and endocarditis and 3 from bronchopneumonia), 71 recovered, and of these 3 were not seen after the first examination. Of the remaining 68, 57 had their tonsils and adenoids removed. For the 11 not operated on the average duration of illness was about seven months. Of the 57 operated on 30 recovered rapidly, the average duration of illness being less than three and a half months patients who died did so before the advent of modern chemotherapy Etiologic factors that have been suggested as causes of acrodynia are a lesion in the diencephalon or mesencephalon similar to encephalitis, vitamin deficiency, smut infected cereals, hypervitaminosis D from sunlight, arsenical poisoning, allergy and infection. The average duration of acrodynia is about six months. It is suggested that acrodynia is due to a toxemia caused by infected tonsils and adenoids

#### Canadian Public Health Journal, Toronto 32:587-630 (Dec ) 1941

Canada War Effort for the Health of Her People J J McCann

Study of 345 Family Contacts with Tuberculous Lesions H J Anderson Fort Qu Appelle Sask—p 594
Value of Annual Report of Vedical Officer of Health J E Daves Hamilton Ont—p 601

Pediculosis—New Treatment I P MacHaffie Ottawa Ont—p 600

High School Medical Inspection in Burlington, Ont A II Speers
Burlington, Ont—p 608
Fallacy of Calculating Rates of Births and Deaths According to Place
of Occurrence E Gagnon Montreal—p 611

Pediculosis -- For the cure of pediculosis MacHaffic recommends 15 per cent of lethane (n butyl-carbitol-thiocyanate) in deodorized purified kerosene One treatment applied to the head without a towel covering kills nits and lice immediately The head is not to be shampooed for a few days. The cost per head is not more than 2 or 3 cents

# Connecticut State Medical Journal, Hartford

6:1-78 (Jan.) 1942

Influence of Food, Drug and Cosmetic Act on Marketing of Drugs. T. G. Klumpp, New York.—p. 3.

Treatment of Fresh Wounds. R. H. Kennedy, New York.—p. 9.

*Use of Normal Human Plasma in Armed Forces. L. R. Newhouser and E. L. Lozner, Washington, D. C.—p. 14.

Supplementary Revenue, Subsidies, Gifts, Donations, Endowments and Other Sources of Financial Support. O. H. Bartine, Bridgeport.

—p. 17.

Tonsillectomy in Selected Peritonsillar Abscess: Case Reports and Commentary. F. Turchik, Bridgeport; N. Canfield, F. N. Sperry, New Haven; P. W. Snelling, E. J. Whalen, Hartford; S. H. Baron, New London, and W. H. Turnley, Stamford—p. 25.

Sesquicentennial Celebration. H. Thoms, New Haven.—p. 26.

Connecticut State Medical Society and Medical Institution of Yale College. H. S. Burr.—p. 28.

Use of Normal Human Plasma.—Newhouser and Lozner state that an enrolment of two hundred thousand donors by the American Red Cross has been raised since the United States declared war on the Axis. The medical profession can aid in the collection of a vast amount of plasma by informing patients who can give blood to do so and by allaying their apprehension of venesection. Unless vasoconstriction, hemoconcentration, venous stasis, decreased blood flow, anoxia of tissue and increased capillary permeability following injuries are promptly interrupted the changes in the tissues will be irreversible and the termination fatal. The prompt administration of an adequate amount of normal human plasma not only will halt but will reverse this sequence of events. Death from hemorrhage is due not to the loss of erythrocytes but to the decrease in the circulating blood volume. Plasma is superior to whole blood, since it promptly corrects the increased viscosity of the blood and restores the circulating blood volume. Plasma, preserved in the liquid, frozen or dried state, has the advantage over blood that it can be administered safely without typing of the donor or of the recipient and without preliminary cross matching. Liquid plasma is safe and is most economical if prepared by a closed aseptic and pyrogen free method and if used before the lapse of nine months of storage at 10 to 20 C. After it has been stored eight to nine months a progressive loss of prothrombin, complement and possibly other labile constituents occurs. Liquid plasma is satisfactory for use in hospitals, but it is not well adapted for use aboard ship, in the field of combat or in bases beyond continental limits, where longer periods of storage may be necessary. For use in the foregoing situations frozen plasma (kept at -15 to -20 C.) is ideal, as all the labile constituents are preserved indefinitely, but it must be thawed to or near body temperature, and this may not always be convenient. The restoration of properly dried plasma to the liquid state takes less than three minutes. The time consuming, complicated and expensive method necessary to prepare dried plasma is offset by the facts that it is stable indefinitely, that it survives extreme changes in temperature and that when properly packaged it is ideal for use in the field and aboard ship. For this reason the armed services have decided to use the dried form. The standard army and navy package contains a bottle of dried plasma (made from 300 cc. of citrated plasma), a bottle (300 cc.) of sterile pyrogen free distilled water and the apparatus necessary for restoration and administration. After the torpedoing of the U.S.S. Kearny, dried plasma was flown to and dropped by parachute to the medical officer on board ship.

# Florida Medical Association Journal, Jacksonville 28:253-308 (Dec.) 1941

Conditions Simulating Appendicitis. F. G. Slaughter, Jacksonville,-

p. 265. Rickettsial Disease in the South. J. O. W. Rash, Miami.—p. 270. The Public Health Control of Gonorrhea. L. C. Gonzalez, Jacksonville.

-p. 286. Three Cases of Cancer in Children Under Three Years of Age. H. E. Palmer, Tallahassee .- p.-289.

#### 28:309-360 (Jan.) 1942

Use of Vitamins in Surgery. J. R. Chappell, T. Butt and S. L. Zieve,

Orlando.—p. 323.

Modern Methods of Immunization. T. M. Palmer, Jacksonville.—p. 330.

A Year's "Eye' Service at Florida State Hospital in Retrospect. F. V. Gammage, Chattahoochee.—p. 333.

Plea for Conservative Treatment of Inevitable and Incomplete Abortion.

W. C. Roberts, Panama City.—p. 338.

# Georgia Medical Association Journal, Atlanta

30:493-534 (Dec.) 1941

Xeroderma Pigmentosum: Report of Case. E. Bosworth, Rome .p. 493.

#### 31:1-40 (Jan.) 1942

Women in Medicine. Loree Florence, Athens.—p. 1.
Sparta Child Health Demonstration: Review of Organization, Plans,
Activities and Accomplishments. T. F. Abercrombie, Atlanta.—p. 15.
Refractory Psoriasis: Report of Attempt to Clear Resistant Lesione by
Intramuscular Injection of Vitamin D. J. Krafka Jr., Augusta. -p. 21.

# Illinois Medical Journal, Chicago

81:1-80 (Jan.) 1942

Scarlet Fever. A. L. Hoyne, Chicago.—p. 12.
Heocecal Granulomas. F. L. McMillan, Chicago.—p. 15.
*Tumors Occurring in Region of Pulmonary Apex: Further Observations with Report of Twelve Additional Cases. J. J. Stein, Hines.—p. 21.
*Five Day Treatment of Syphilis. H. Rattner, Chicago.—p. 29.
*Paravertebral Alcohol Injection for Relief of Cardiac Pain. S. Perka.

Chicago .- p. 35.

Rheumatism: Practical Methods of Study and New Phases of Investiga-tion. W. L. Wood, R. Merchant, Lucille Watt and Elizabeth Beling. Chicago.—p. 41.

Physiologic Problems in Suction Drainage of Gastrointestinal Text.

J. L. Lindquist, Chicago.-p. 49.

Favorable Prognosis of Coronary Disease. D. Luten, St. Louis.-p. 51 Vitamin K in Hypoprothrombinemia. J. E. Karabin, Evanston. p. 56 Relapsing Febrile Nodular Nonsuppurative Panniculitis (Weber-Christian Disease). W. A. Rosenberg and T. M. Cohen, Chicago. p. 59.

Acute Perforation of Gastric and Duodenal Ulter: Study of 200 Consecutive Operated Cases. J. B. O'Donoghue and M. B. Jacobs, Chi cago.-p. 62.

Incidence of Syphilis in Alcoholic Patients: Statistical Study of 769
Consecutive Cases, A. J. McGee, Dwight.—p. 69.
Diagnosis of Poliomyelitis. B. M. Levin, W. H. Reals, I. P. Bron-tria

and M. Magree, Chicago .- p. 71.

Tumors in Region of Pulmonary Apex.—Stein reviews 15 cases of so-called tumor of the superior pulmonary sulcus which he reported in 1937 and 1938 and presents 12 new cases. Only 1 of the 15 patients was a Negro, and all were men. The right lung of 10 and the left of 5 was involved. The duration of life from the onset of symptoms was thirteen and four-tenths months. The first symptom was pain in the shoulder and arm on the affected side. Horner's syndrome nas present in 13 and costal or vertebral changes in 11. Nine patients were irradiated with no appreciable effect; in 2 an attempt was made to remove the tumor, but because the mediatinum and the brachial plexus were involved this was not possible. Eleven of the twelve new tumors occurred in white men and one in a Negro. The average age on admission was 50.7 years. The right lung of 7 patients and the left lung of 5 was involved. The first symptom in 11 was pain in the shoulder on the affected side; Horner's syndrome was present in 8 and costal or vertebral changes in the apical region in 7 Ten patients were irradiated with no appreciable relief, in I irradiation and the injection of alcohol into the involved sympathetic nerves gave some relief and 1 obtained relief from symptomatic therapy only. All the patients have died; the average length of life from the onset of symptoms was mehe and three-tenths months. Although Pancoast in 1932 expressed the belief that he had described a new pathologic and clinical entity, recent evidence shows that any tumor in the pulmonary apex may produce the syndrome that he described. The eridence on which he based his conclusions is inadequate, essecially since gross or postmortem evidence was not available, a branchial origin has not been demonstrated and no anatomic structure has been designated as the superior pulmonary sulcus. Microscopic and postmortem evidence is presented which shows that the majority of the malignant tumors in the thoracic inlet or pulmonary apex are carcinomas of the terminal bronchioles of the lung.

Five Day Treatment of Syphilis.—Rattner reports 170 cases of early syphilis in which the so-called five day therapy was employed. The daily dose amounted to 0.24 Gm. of mapharsen dissolved in 2,000 cc. of a 5 per cent solution of dextrose in triple distilled water. There were 103 men and 67 women; 52 had primary syphilis and 118 presented secondary manifestations. Final clinical evaluation cannot yet le made, because experience is much too recent. Spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the spirochetes discourse of the appeared from the lesions usually in one or two days, and all open lesions healed during the seven days of hospitalization

The spinal fluid of 162 patients was examined and was found normal in each instance. Eighty patients have been observed for five or more months after the completion of treatment. All relapses occurred in the fourth month. Of the first 80 patients 14 had to be dropped from the study, in 28 the blood serologic reactions reverted from positive to negative (usually in the tenth week), in 2 the Kahn reaction is still positive six months after treatment but the Kahn quantitative units are steadily decreasing, in 6 (treated before the serologic reaction of the blood became positive) the reaction is still negative after eight months and in 18 a progressive improvement was demonstrated by Kahn quantitative tests; 3 of the remaining patients have relapsed, 1 has probably relapsed or become reinfected, 2 have had reinfection and in 6 the results were "unsatisfactory when the patient was last seen" (the blood quantitative titers were vacillating rather than decreasing).

Paravertebral Injection of Alcohol for Cardiac Pain .-Perlow states that 16 of 22 patients with cardiac pain obtained complete or partial relief from pain after a paravertebral injection of alcohol. The method is simple and relatively safe and can be repeated if necessary. The objection that the injection removes the danger signal (pain) of coronary insufficiency is theoretical. The patient soon learns to heed other signals and does not harm himself. The relief of pain not only is symptomatically desirable but actually reduces the work of the heart, as the patient can rest and relax.

#### Journal of Clin. Endocrinology, Springfield, Ill. 2:1-64 (Jan.) 1942

Creatinine Excretion in Women: Data Collected in Course of Urinalysis for Female Sex Hormones. O. W. Smith, Brookline, Mass.—p. 1.
Creatine Retention Capacity of Boys in Relation to Androgen Function. D. A. Duckworth, New York.—p. 13.
Effects of Testosterone Propionate and Stilbestrol on Mammary Gland Postpartum. E. M. Jeppson, Salt Lake City; H. Y. Kasabach and A. E. Kanter, Chicago.—p. 16.
Stilbestrol, Management Filter, Percent on Its Clinical Vision Company.

Stilbestrob Monomethyl Ether: Report on Its Clinical Use. C. F. Geschickter and Elizabeth W. Byrnes, Baltimore. p. 19.

*Chnical Experiences with Sublingual Administration of Alpha Estradiol. G. J. Hall, Sacramento, Calif.—p. 26.

*Sexual Infantilism of Hypothyroid Origin. H. Lisser, San Francisco. -p. 29.

*Carotenemia in Myxedema: Explanation of Typical Slightly Icteric Tint. R. F. Escamilla, San Francisco.—p. 33.
Diagnosis of Addison's Disease. J. M. Rogoff, Pittsburgh.—p. 36.

Treatment of Addison's Disease with Interrenalin (Adrenal Cortex Extract). J. M. Rogoff, Pittsburgh.—p. 43.

Effect of Adrenal Cortical Extract, Desoxycorticosterone and Added Potassium on Electrolyte Balance in Normals and in Addison's Disease, J. A. Greene, Ann David and G. W. Johnston, Iowa City.—p. 49. Preoperative Administration of Desoxycorticosterone Acetate in Prevention of Surgical Shock. F. R. Keating Jr., E. H. Rynearson and Marschelle H. Power, Rochester, Minn.—p. 53.

Sublingual Administration of Alpha Estradiol. — Hall compared the absorption ratio of alpha estradiol in a solution of propylene glycol-alcohol administered sublingually to that of alpha estradiol benzoate given intramuscularly to 98 women with menopausal symptoms. In 41 patients the variation in vaginal cornification after sublingual therapy was determined over fourteen days. At the end of this time, castrates who had received no previous therapy showed improved vaginal cornification, 15 women in the menopause showed a slight reduction of cornification, 8 had smears showing an improved estrogenic level, 5 who had had a hysterectomy had a slight reduction and 3 were definitely improved. Twenty-four of 41 patients did not maintain the same estrogenic level, 3 maintained the original high level and 14 showed much improvement. The patients who did not maintain the required level of estrogen were given an intramuscular injection of 10,000 rat units of estradiol benzoate followed by a dose of 0.1 cc. of the estradiol solution, given sublingually, five times a day (instead of the usual four) with completely adequate results. fore, individualization of the dose is required for effective clinical results with sublingual administration. The data justify the belief that the giving of alpha estradiol in a propylene glycol-alcohol solution sublingually produces the same effects on vaginal cornification as the giving of estradiol benzoate parenterally. Propylene glycol-alcohol solution appeared as effective, milligram for milligram, as did alpha estradiol benzoate given hypodermically,

Sexual Infantilism of Hypothyroid Origin. - Lisser reports a case in which the manifestations suggested adolescent hypothyroidism without typical myxedema. An unmarried woman of 27, who appeared twelve to fifteen years younger and whose secondary sexual characteristics were undeveloped, had had irregular, scanty menstrual periods since the age of She was somewhat below normal height, her bone age was estimated at 14 years, her features were slightly puffed and she had a pulse rate of 58 to 66, a basal metabolic rate of -27, severe anemia, preference for warm weather and easy fatigability. The patient was treated for one year with thyroid. This elevated the basal metabolic rate to normal, diminished the anemia and caused the breasts to develop, the menstrual periods to become regular and the personality to become vivacious. She has married and has experienced intense libido and gratification. The pubic hair remained sparse, and no axillary hair appeared. Diethylstilbestrol (1 mg. daily, given orally) was used later, and this seemed to stimulate the growth of the pubic hair.

Carotenemia in Myxedema.—Escamilla cites 7 consecutive cases of untreated myxedema in which carotenemia coexisted. He suggests that this may be part of the typical clinical picture and may explain the yellowish color of the skin seen so The carotenemia cleared gradually under treatfrequently. ment with thyroid substance. Carotenemia was observed also in a patient with Simmonds' disease. It is suggested that carotenemia frequently accompanies a low basal metabolic rate. The probable explanation is that the conversion of carotene to vitamin A in the liver is hindered by the depressing effect of the lowered metabolism.

#### Journal of Clinical Investigation, New York 21:1-120 (Jan.) 1942

Cardiocirculatory Effects in Man of Neosynephrin (1-a-Hydroxy-\(\beta\)-Methylamino-3-Hydroxy-Ethylbenzene Hydrochloride), A. Keys and

A. Violante, Minneapolis.—p. 1. Cardiocirculatory Effects in Man of Synephrin Tartrate (dl-α-Hydroxy-β-Methylamino-4-Hydroxy-Ethylbenzene Hydrochloride). A. Keys and

A. Violante, Minneapolis.—p. 13.

Changes in Blood Pressure and in Renal Blood Flow and Glomerular Filtration Rate of Hypertensive Patients Following Unilateral Nephrectomy. M. Friedman, A. Selzer, H. Kreutzmann and J. J. Sampson, with technical assistance of P. Blakeslee, San Francisco.—p. 19. Radioactive Iodine as Indicator in Thyroid Physiology: IV, Metabolism of Iodine in Graves's Disease, S. Hertz, A. Roberts and W. T.

Salter, Boston.—p. 25.

Id.: V. Use of Radioactive Iodine in Differential Diagnosis of Two Types of Graves's Disease. S. Hertz and A. Roberts, Boston.—p. 31. Rôle of Adrenal Cortex in Acute Anoxia. R. A. Lewis, G. W. Thorn, G. F. Koepf and S. S. Dorrance, Baltimore.—p. 33.

*Effects of Interrupting and Restoring Circulation to Lower Extremities, D. Dauber, M. Landowne, L. N. Katz and H. Weinberg, Chicago. -p. 47.

Filtration Rate, Effective Renal Blood Flow, Tubular Exerctory Mass and Phenol Red Clearance in Normal Pregnancy. Catherine A. Welsh, I. Wellen and H. C. Taylor Jr., with technical assistance of Anna Rosenthal, New York.—p. 57.

Rosenthal, New York.—p. 57.

Filtration Rate, Effective Renal Blood Flow, Tubular Excretory Mass and Phenol Red Clearance in Specific Toxemia of Pregnancy. I. Wellen, Catherine A. Welsh and H. C. Taylor Jr., with technical assistance of Anna Rosenthal, New York.—p. 63.

Prevention of Sensory Neuron Degeneration in Pig, with Special Reference to Role of Various Liver Fractions. M. M. Wintrobe, C. Mushatt, J. L. Miller Jr., L. C. Kolb, H. J. Stein and H. Lisco, Baltimore.—p. 71.

Pethologic Variations in Physical Scient Floring Policy Desirations.

Pathologic Variations in Blood and Spinal Fluid Pyruvic Acid. E. Bucding, H. Wortis and M. Stern, with technical assistance of Dorothy Esturonne, New York,—p. 85.

Significance of Porphyrinuria in Lead Poisoning. R. Kark and A. P. Meiklejohn, Boston,—p. 91. Meiklejohn, Boston.-p. 91. Acid-Base Balance of Premature Infants, W. S. Branning, Durham,

N. C.-p. 101.

Renal Function in Patients with Addison's Disease and in Patients with Adrenal Insufficiency Secondary to Pituitary Panhypofunction. J. H. Talbott, L. J. Pecora, R. S. Melville and W. V. Consolazio, Boston.—p. 107.

Circulation to Lower Extremities .- Dauber and his associates studied the changes in cardiac acceleration and arterial and venous pressure that occurred during the release of a tourniquet applied to the extremities and during occlusion in 27 normal young adults and in 4 subjects with moderately advanced thromboaugiitis obliterans. The observations were made while the subjects were recumbent, after a rest period of fifteen to thirty minutes in a warm quiet and darkened room. Cardiac acceleration followed release of occluding cuffs in the normal subjects but was absent or reduced in the patients with thromboangiitis obliterans A fall of the blood pressure in the brachial artery preceded the cardiac acceleration. The fall in blood pressure was caused by the opening of a temporary low resistance pathway for blood through vessels dilated as a result of the previous occlusion. The primary mechanism inducing the cardiac acceleration is a reflex response to the drop in pressure in the central arteries (Marey's law) The cardiac acceleration is not caused by a metabolite accumulating in the constricted extremities The assumption that the reflex arises from the occluded vessel or from the tissue of the extremity is not satisfactory.

Porphyrinuria in Lead Poisoning -Kark and Meiklejohn attempted to trace the path of the destruction of hemoglobin in 2 cases of lead poisoning by observing the effect of intravenously injected hemoglobin on the production of bilirubin and on the excretion of coproporphyrin and urobilinogen in the urine and feces. The introduction of free hemoglobin was followed by a rapid rise in plasma bilirubin This resembled the bilirubinemia observed by Gilligan, Altschule and Katevsby in normal subjects under the same conditions. It was accompanied by a transient increase in the excretion of urmary urobilinogen The injection caused no detectable increase in the urmary or fecal excretion of coproporphyrin An interruption in the path by which hemoglobin is destroyed in the body was not demonstrated Therefore the porphyrmuria occurring in lead poisoning cannot be explained on this basis The results lend support to the view that the anemia in lead poisoning is dyshemopoietic rather than hemolytic

#### Journal Industrial Hygiene & Toxicology, Baltimore 23:459-496 (Dec ) 1941

Significance of Urnary Mercury I Occupational Mercury Exposure II Mercury Absorption from Mercury Bearing Dental Fillings and Antiseptics E D Storlazzi and H B Elkins Boston—p 459
Phenylmercuric Oleate Skin Irritant Properties C P McCord, S F Meek and T A Neal, Detroit—p 466
Toxicology of Selenium VI Effects of Subacute Exposure to Hydrogen Selenide H C Dudley and J W Miller Bethesda, Md—p 470
Some Pharmacologic Properties of 'Tergitol' Penetrants H F Smyth Jr., Jane Seaton and Louise Fischer, Pittsburgh—p 478
Solubility of Carbon Disulfide Vapor in Body Fluids and Tissues R W McKee, Boston—p 484

#### 24:1-20 (Jan ) 1942

Evaluation of Lend Hazard in Decorating Department of Glass Plant Relation of Urinary and Atmospheric Lead Determinations C A Smucker and J B Kistler, Columbus, Ohio—p 1 Metabolism of Monomitroparaffins I Recovery of Astroethane from Animal Organism W Machie E W Scott and J Treon Cincin

natı --- p 5

E C Barnes and H W

Determination of Formaldehyde in Air Speicher, East Pittsburgh Pa-p 10

#### Journal of Investigative Dermatology, Baltimore 4:431-524 (Dec ) 1941

Electrolyte Content and Permeability of Erythrocyte in Pemphigus N B Kurnick W F Lever and J H Talbott, Boston—p 431

Donnan Equilibrium and Blister Formation T Cornbleet, Chicago—

p 451 Dermatitis from New Synthetic Resin Fabric Finishes L Schwartz

-p 459 Practical Application of Some Immunologic Principles to Diagnosis and Treatment of Certain Fungous Infections D S Martin, Durham N C-p 471

N C—p 471
Pigment Studies in Skin Grafts on Experimental Animals M L Lewin and S M Peck, New York—p 483
Studies in Eczematous Sensitizations I Comparison Between Sensitizing Capacities of Two Allergens and Between Two Different Strengths of Same Allergen and Effect of Repeating Sensitizing Dose A Rostenberg Jr and Naomi M Kanof, Washington, D C—p 505

# Journal of Nervous and Mental Disease, New York 95:1-132 (Jan ) 1942

Abstract Art as Expression of Human Problems P Schilder and Esther
Leepa Levine, New York—p 1
Exhibitionism N K Rickles, Seattle—p 11
Pharmicologic Aspects of Shock Therapy H A Hoffman, Washington,

Pharmicologic Aspects of Shock Therapy H A Hoffman, Washington, D C—p 18
Obsessive Compulsive Neurosis in Children L Berman, Boston—p 26
Intravenous Injection of Solution of Zinc Insulin Crystals Its Effect in Treatment of Mental Diseases P Polatin, H Spotmiz and A J Raffaele, New York—p 40
Problems of 'Physiologic' Sense Perception M Marquardt, Augusta, Mangar 26

Maine -p 46

# Journal of Neurophysiology, Springfield, Ill. 5:1-88 (Jan) 1942

Electric Potential Changes at Isolated Nerve Muscle Junction S W

Kuffler, Sydney, Australia —p 18
Responses of Iris to Prolonged Stimulation of Its Parasympathetic News.
Supply J V Luco and H Salvestrini, Santiago, Chile-p 27 Isolation of Retinal and Optic Ganglion Response in Eye of Dytic C G Bernhard, Stockholm, Sweden -p 32

Acoustic Area of Monkey (Macaca Mulatta) H W Ades Atlanta G.

and R Felder -p 49 Breakdown of Accommodation—Nerve as Model Sense Organ C C Bernhard R Granit and C R Skoglund, Stockholm Sweden.—p Effect of Section of Medial Lemniscus on Proprioceptive Functions i Chimpanzees and Monkeys O Sjogvist and E A Weinstein \c. Haven, Conn -p 69

Excitation and Inhibition of Phrenic Motor Neurons R F P New York -p 75

# Journal of Nutrition, Philadelphia 23:1-100 (Jan) 1942 Partial Index

Utilization of Calcium of Carrots by Adults Herta Breiter, Reshring Mills, Esther Rutherford Williamina Armstrong and Julia Outles. Urbana, Ill -p 1

Urbma, III—p 1
Occurrence of Free and Bound Biotin J O Lampen, G P Eave and W H Peterson, Madison, Wis—p 11
Studies in Nicotinic Acid Metabolism Parts I and II H P Sirt J W Huff and W A Perlzweig, with technical resistance of Morr Steinhouse and Rachel Forth, Durham, N C—p 23
Pantothenic Acid in Nutrition of Rat L M Henderson J M McIntire, H A Waisman and C A Elvehjem, Midison Wis—p 4
Criteria of Response in Biorssay of Vitamin E h E Mason Nivelle, Tenn—p 59
Distribution of Vitamin E in Tissues of Rat h E Mason, Nivelle, Tenn—p 71

ville, Tenn -p 71

# Journal of Pediatrics, St. Louis

20:1-144 (Jan ) 1942

Whooping Cough Parts I to IV N Silverthorne C Cameron 2⁻³ A Brown Toronto, Canada —p 1
Stimulation Dose in Whooping Cough J H Lapin Bronx, N 1

-p 18 Infectious Mononucleosis Its Treatment with Scarlet Fever Considered Serum H K Berkley, Los Angeles -p 26

*Comparison of Routine Urinalysis, Addis Count and Blood Sedimertal Rate as Criterio of Activity in Acute Glomerulonephritis
Rubin, M Rapoport and A D Waltz, Philadelphia - p 32

*New Concepts of Gonococcic Vaginitis A Cohn, A Steer and Ele-L Adler New York—p 41

Tuberculin Patch Test Study of Effect of Variations of Norm 1 Froncedures J Schwartzman, D Dragutsky and G Rook Brother

Benzedrine Sulfate (Amphetamine) in Treatment of Obe e Children Adolescents Hilde Bruch and Irene Waters, New York-p 34
Thiamine Content of Various Milks A Kendall, Philadelphia-p 6
*Truncus Arteriosus Communis Persistens M Lev and O S 5 1 ork -p 54

Chicago -p 74 Poisoning from Topical Application of 15 per Cent American Report of Case C I Wilbar Jr., Honolulu Hawa Mercury Poisons ated Mercury —p 89

Feeding Behavior of Infant During First Twelve Weeks of Life of Self Demand Schedule Narrative by Mother with Discussion by Pediatrician Frances P Simsarian and P A McLendon Wash, ton D. C. 202

ton, D C -p 93

*Incidence of Tuberculosis Among 2,562 High School Students in S ban City W B Nevius, East Orange J-p 104

Urinalysis, Addis Count, Blood Sedimentation Rate-Rubin and his associates followed the course of an attack ( acute glomcrulonephritis in 40 patients hospitalized within fit days of its onset by means of determination of the blood edi mentation rate and the Addis count and routine urmah The data show that while routine urinally sis usually gave rot mal results on the thirty-seventh day the Addis count required one hundred and twenty days to become normal. There was a close correlation between the number of days required f the twelve hour erythrocyte exerction (Addis count) to dr to the 10 million level (seventy-six days) and the time rate sary for the rapid sedimentation rate to become normal (eight The data demonstrate the madequacy of reurinalysis as a guide to the cessation of active di case. Ti simplicity of the determination of the blood sedimental rate makes the test a valuable index of the course of a glower language of the course of a glower language of the course of the glower language of the course of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of the glower language of glomerulonephritis

New Concepts of Gonococcic Vaginitis - Danie 12 last three years Cohn and his colleagues examined 1,715 F. who had symptoms of gonococcic vaginties or were considered of persons with the disease. The cultures and smears of c 381 were positive. The culture method was the lest for the

diagnosis and the pronouncement of cure of gonococcic vaginitis. Sulfathiazole therapy was the treatment of choice. Patients with vaginitis who require hospitalization may be cared for in general wards when the usual isolation technic applied for other slightly communicable diseases is employed. Treated patients may return to schools and institutions when clinical signs have cleared up and the cultures are negative. may be pronounced satisfactory when culture gives a negative result every month for six months. Vaginitis will not spread from one girl to another when the vaginal discharge of an infected child is prevented from reaching the vulva of a noninfected one. Attention should be directed toward contaminated linen, diapers, rectal thermometers, enema tips and the fingers of the parent or attendant. The last mentioned item is probably most frequently the fomes in the transmission of the disease. Toilet seats are not an important factor.

Truncus Arteriosus Communis Persistens. - Lev and Saphir observed a girl baby aged 18 days whose heart was the seat of a transposition with truncus arteriosus communis persistens. The anatomic features of the case were as follows: 1. Only one large vessel, arising from the right ventricle, emanated from the heart. This trunk gave off the coronary arteries, the systemic vessels and two pulmonary arteries. 2. The mouth of this vessel was guarded by three semilunar cusps. 3. The right and left coronary ostiums lay, respectively, in the sinus of Valsalva of the left anterior cusp adjacent to the right anterior cusp and above the commissure between the posterior and right anterior cusps. 4. There was an archlike ridge over the combined mouths of the pulmonary arteries. 5. No vessel emerged from the left ventricle. 6. There was a defect of the ventricular septum. 7. The right auriculoventricular valve had only two leaflets. 8. The foramen ovale was patent. 9. The anatomy of the muscle bundles of the right ventricle was abnormal. The authors present a phylogenic and embryologic explanation of the anomaly.

Tuberculosis Among High School Students. - Nevius states that the patch testing of 2,562 high school students disclosed 396, or 15 per cent, who reacted positively. Roentgenograms of the 396 students showed that 66 had the primary complex and 6 the reinfection type of the disease. The cost of the testing and of making the necessary roentgenograms was \$634.87, or 25 cents per student.

#### Journal of Pharmacology & Exper. Therap., Baltimore 74:1-98 (Jan.) 1942. Partial Index

Effects of Calcium Administered Parenterally to Normal and Parathyroidectomized Dog. P. L. Bedinger, A. B. Kendrick and R. W.

Keeton, Chicago.—p. 1.

Studies on Toxicity of Actinomycin. H. J. Robinson, Rahway, N. J., and S. A. Waksman, New Brunswick, N. J.—p. 25.

Studies on Fate of Morphine. F. W. Oberst, Lexington, Ky.—p. 37.

Therapeutic Incompatibility Between Sulfapyridine and Quinine. B. K.

Harned and Versa V. Cole, Philadelphia.—p. 42.

In Vitro Study on Synergistic Action of Sulfamido Compounds and Azochloramide on Various Pathogenic Micro-Organisms. E. Neter, Buffalo .- p. 52.

Effect of Treatment with Testosterone Propionate on Mercuric Chloride Posoning in Rats. L. P. Longley, Cleveland.—p. 61. Conjugation of Sulfanilamide by Pathologic Tissue in Vitro. A. Goth,

Nashville, Tenn.—p. 71.

Some Toxicologic and Pharmacologic Properties of Gramicidin, Tyrocidine and Tyrothricin. H. J. Robinson and H. Molitor, Rahway, N. J.-p. 75.

Experimental Comparison of Several Alkylmercuric Chlorides as "Skin Sterilizing" Agents, M. T. Bush and A. D. Bass, Nashville, Tenn.

Toxicologic and Pharmacologic Properties of Certain Antiseptics.-Robinson and Molitor present data on the acute and cumulative toxicity and pharmacologic properties of gramicidin, tyrocidine and tyrothricin as observed in 1,200 Swiss mice and 210 albino rats after oral, intravenous and intraperitoneal administration. Gramicidin and tyrothricin were more toxic than tyrocidine when injected intravenously and intraperitoneally. The preparations were not toxic on single or repeated administration by mouth. The physical properties of gramicidin and tyrocidine limit their application to infections in which local therapy can be employed; the absence of irritating properties in these agents gives them a definite advantage over other antiseptics and may extend the scope of their application. Although the toxicity of gramicidin and tyrothricin is greater than that of most agents of the sulfonamide group, their extraordinary bacteriostatic activity affords a large margin of safety. Pharmacologically and toxicologically the compounds have no pronounced specific properties. They do not have a definite specific effect on the respiratory or circulatory systems. Large single doses are usually tolerated without any definite effect, while multiple small doses cause a fall of blood pressure and impair respiration. With lethal doses the respiration stops shortly before the heart does. When these compounds are used clinically, care must be taken if rapid and direct absorption into the blood stream is likely.

#### Medical Annals of District of Columbia, Washington 10:459-500 (Dec.) 1941

Practical Points in Diagnosis and Treatment of Epilepsy and Migraine. W. G. Lennox, Boston.—p. 459.
Problems Arising in Chemotherapy of Pneumonia and Meningitis. H. F.

Dowling, Washington .- p. 463.

Clinical Factors in Male Sterility Based on Study of 100 Cases. N. Belt, Washington .- p. 468.

Treatment of Fibrositis with Vitamin E. D. W. Ingham, Washington. -p. 470.

Oculai Emergencies in General Medical Practice. F. D. Costenbader, Washington .- p. 472.

#### New England Journal of Medicine, Boston 225:963-994 (Dec. 18) 1941

*Hiatus Esophageal Hernia, with Special Reference to Comparison of Its Symptoms with Those of Angina Pectoris. C. M. Jones, Boston.—

The Doctor of One Hundred and Fifty Years Ago. H. H. Amsden, Concord, N. H .-- p. 972.

Insulin Resistance in Case of Diabetes Mellitus and Chronic Lymphatic Leukemia: Report of Case. J. E. Levi and H. T. Friedman, Balti-more.—p. 975.

Leukemia: Agranulocytosis. H. Jackson Jr., Boston.-p. 978.

Esophageal Hernia.-Jones reviews symptoms presented by 91 patients with small and 37 with large hiatus hernia. The average age of the patients was 55, and most were overweight. A diagnosis was made of heart disease in 13 and of disease of the biliary tract in 22. Substernal pain was experienced by more than one third of the patients with a small but by only 5 of those with a large hernia. Pain in the shoulder, usually on the left, was noticed by about one fourth of all the patients. The pain of 8 of the patients with a small and of 4 with a large hernia radiated to the arm, and pain in the hand and fingers was complained of by 5 of the 8. Palpitation was noted by 6 patients with a small and by 4 with a large hernia. Dyspnea was noticed, respectively, by one tenth and by one third of the patients. Epigastric pain occurred in two thirds of 78 hospital patients and in 19 of 45 private patients. Pain in the costal margin on the right and/or the left side was present in 21 of the 91 patients and in 11 of the 37. About one fourth of the patients complained of pain in the back, and 4 patients with small hernias experienced pain directly under the left or the right scapula. Two of the latter had disease of the gallbladder. Axillary pain was noticed by 3 patients with a small hernia and difficulty in swallowing by 4. Heartburn was a characteristic symptom of small hernia in 14 private patients but in only 2 ward patients. Pain in the right side of the chest, shoulder or arm was observed by 13 patients with a small and by 6 with a large hernia. Eight of 25 patients with substernal pain, 4 of those with pain radiating to the shoulder and 3 of those with pain radiating to the arm stated that exertion frequently initiated the symptom. Nervous tension and acute emotional disturbances initiated symptoms suggesting angina pectoris. The intake of food was responsible for initiating substernal pain in 15 of 25 patients and in half of the patients complaining of pain radiating to the shoulder, arm or fingers. Only 11 patients had heart disease that may have contributed to the presenting symptoms. Study suggests that the pain in hiatus hernia is probably mediated over visceral afferent fibers supplying the esophagus and the cardiac or fundic portion of the stomach, or over the sensory afferent fibers from the diaphragm contained in the phrenic or middle or lower thoracic nerves. Overdistention of the esophagus or the herniated portion of the stomach may thus be responsible for anginal pain in any or all of its components. Treatment is essentially medical. Phrenicectomy or surgical repair is justified only for large hernias or when

medical measures fail. Acute symptoms are frequently helped by administration of glyceryl trinitrate. Assuming an upright or a semiupright position after eating is desirable. Adequate physical and emotional rest, sedation when needed and the avoidance of exercise shortly after the intake of food are valuable measures. Accompanying coronary disease and cholelithiasis should be properly evaluated.

# Rhode Island Medical Journal, Providence 24:217-232 (Dec.) 1941

Henry Turner of Newport: Belated Tribute to Pioneer in Field of Cerebral Decompression. W. Pickles, Providence.—p. 217. Torum Meningoencephalitis: Report of Case. I. C. Nichols, Wickford. -p. 221,

Ovarian Pregnancy: Case Report. P. S. Geller, Newport.—p. 223. Needs of the Cardiac Child. H. E. Utter, Providence,—p. 225.

#### Southwestern Medicine, El Paso, Texas 25:381-414 (Dec.) 1941

Respiratory Tract Obstruction and Its Secondary Effects. T. C. Gallo-

way, Evanston, Ill.—p. 381.

Recent Advances in Cancer. E. P. Palmer, Phoenix, Ariz.—p. 385.

Management of Chronic Arthritis. R. M. Smith, Dallas, Texas.—p. 393.

Cutaneous Complications in Treatment of Syphilis. H. D. Newton, San Diego, Calif .- p. 395.

Effect of Electromagnetic Radiations on Flocculation Tests for Syphilis. E. L. Breazeale, Tucson, Ariz .- p. 398.

# Surgery, St. Louis

11:1-168 (Jan.) 1942

Effect of Bile Salts on Recovery of Liver Function After Release of Common Duct Obstruction. A. L. Berman, E. Snapp and A. C. Ivy, Chicago .-- p. 1.

Blood Studies During Anesthesia: Reference to Infections and Non-*Dynamic Changes in Experimental Pulmonary Embolism. R. S. Megibow, L. N. Katz and F. S. Steinitz, Chicago.—p. 19.

Reduction of Supracondylar Fracture in Children. V. L. Hart, Minne-

apolis .-- p. 33.

Influence of Hypoproteinemia on Formation of Callus in Experimental Fracture. J. E. Rhoads and W. Kasinskas, Philadelphia.--p. 38,

Secondary or Postoperative Parotitis. G. F. Madding and R. E. Fricke, Rochester, Minn .-- p. 45.

Influence of Caloric Restriction on Incidence of Spontaneous Mammary Carcinoma in Mice. M. B. Visscher, Zelda B. Ball, R. H. Barnes and I. Sivertsen, Minneapolis.—p. 48. Experimental Studies on Alimentary Azotemia: III. Site of Blood Absorption. C. F. Chunn, Vicksburg, Miss.; H. N. Harkins and

R. T. Boals, Detroit .- p. 56.

Pilonidal Sinuses Occurring over Higher Spinal Segments: Report of Case Involving Spinal Cord. H. P. Kooistra, Grand Rapids, Mich.

*Fusospirochetal Onychia and Paronychia. T. Benedek, Chicago.

*Malignant Meningiomas: Clinical and Pathologic Study. O. A. Turner, W. M. Craig and J. W. Kernohan, Rochester, Minn.—p. 81.

*Thromboangiitis Obliterans: Clinical Observations and Arterial Blood Oxygen Studies During Treatment of Disease with Sodium Tetrathionate and Sodium Thiosulfate. F. V. Theis and M. R. Freeland, Chicago .- p. 101.

Experimental Pulmonary Embolism.-Megibow and his colleagues measured directly, after the experimental production of pulmonary embolisms in 14 normal anesthetized or unanesthetized dogs, the pulmonary and the systemic arterial pressure, the systemic venous pressure and the heart and respiratory rates. Major multiple minor pulmonary embolisms were followed by systolic and diastolic pulmonary hypertension. Changes in the systemic arterial pressure were not striking. The systemic venous pressure usually rose; it rarely fell or showed no change. Changes in heart rate were inconstant. Ventricular fibrillation occasionally appeared terminally in an animal. Rapid progressive respiration usually developed at the same time as or soon after pulmonary hypertension ensued. Most frequently progressive cyanosis accompanied the respiratory changes. The theory of reflex coronary vasoconstriction as a cause of "sudden death" is hardly supported by the experiments, since mechanical factors explain the possible changes in coronary circulation. Death in cases of pulmonary embolism appears to be due to a rapid or slow failure of the right side of the heart, as a result of obstruction to the pulmonary vessel. So-called hypokinetic circulatory failure is in reality rapid failure of the right side of the heart.

Fusospirochetal Onychia and Paronychia. — Benedek believes that his case of onychia and paronychia caused and sustained by fusospirochetal organisms for two years is the first to appear in American literature. The progress of the condition,

without lymphangitis' or lymphadenitis, was slow but definite. The local and intravenous administration of neoarsphenamine failed to produce a cure, but the surgical removal of the affected nails resulted in prompt healing.

Malignant Meningiomas .- Turner and his associates state that among 370 intracranial meningeal tumors examined microscopically 36 showed definite malignant characteristics; 22 occurred in men and 14 in women. Twenty-two occurred during the third, fourth and fifth decades and the others around the ages of 8 and 60. The forms of the tumors were frequently bizarre and atypical. This, the authors suggest, is to be considered as progress of the anaplastic process beyond the stage of simple sarcomatous or malignant properties. The giant cells, seen frequently in the 14 more malignant tumors (11 occurred in male patients) were considered by Globus as evidence of vigorous cell growth. He believed that these cells establish a link between quiescent and malignant meningiomas. In many of the 22 low grade tumors or those with early malignant changes early or incomplete forms of giant cells were observed.

Thromboangiitis Obliterans.-Theis and Freeland report observations on studies of the arterial blood oxygen. Deficient oxygenation of the arterial blood was usually present in patients with thromboangiitis obliterans during the active stage of the disease. After two to six weeks of treatment the increase in the oxygenation of the arterial blood was accompanied by clinical improvement and in some cases by recovery (five years). The deficient oxygenation in most of the patients was affected by smoking. Prior to 1937 only sodium thiosulfate was available, but since then sodium tetrathionate (which is slower in action but more prolonged in its effect) has been used. For acutely affected persons, when an immediate effect was desirable injections of the thiosulfate were given every other day and the tetrathionate on the alternate days. As the acute stage subsided, biweekly or weekly injections of the sodium tetrathionate solution were given. The usual intravenous dose was 1 Gm. of sodium thiosulfate and 0.4 or 0.6 Gm. of sodium tetrathionate dissolved in 10 cc. of sterile distilled water. Transitory reactions may occur with either drug, but they are generally relieved by the drinking of a glass of water. No serious reaction occurred after almost 8,000 injections. The appearance of the blood and an occasional sedimentation test are usually sufficient to determine the course of the disease. Passive vascular exercise was used, with benefit, for deficient circulation due to thrombolic occlusion of the peripheral arteries. For patients who have recovered completely all treatment may be discontinued, but when smoking is resumed periodic injections should be continued

# West Virginia Medical Journal, Charleston 38:1-48 (Jan.) 1942

Public Health Administration. R. H. Riley, Baltimore, -p. 1. Diagnosis and Treatment of Cardiac Emergencies. W. Dressler, New York

*Sulfaguanidine in Trentment of "Bloody Flux." G. M. Lyon, T. G. Folsom, W. J. Parsons and Irma Sprouse, Huntington. p. 19. Sinusitis with Subsequent Meningitis. E. C. Hartman, G. Geyerhaba and S. A. Solomon, Parkersburg .-- p. 27.

Resurvey on 243 Cases of Anterior Poliomyelitis in West Virginis:
Report. A. M. Price and Ester M. Finley, Charleston.—p. 29.
Leukorrhea: Its Significance and Treatment. J. A. Hepp, Pittsburgh.

---р. 32.

Sulfaguanidine for "Bloody Flux."-Lyon and his associates present data on 259 patients who had "bloody flux" and were treated with sulfaguanidine. The drug has proved to be quickly effective and safe for the treatment of such patients in the home, the office and the hospital. They recommend an initial dose of 0.1 Gm. of sulfaguanidine per kilogram of body weight and thereafter one of 0.05 Gm. per kilogram of body weight every four hours for three days and then the same dose every eight hours for two days. If the patient has not recovered by this time and the character of the stool has not changed they advise treatment with sulfathiazole for five days. Sulfaguanidine, because of its freedom from toxic effects, is preferred to sulfathiazole. Its greater safety is not to be overlooked when treatment must be given in the home. The frequency of failures, relapses, second infections and chronic intestinal indigestion las been greatly lowered by sulfaguanidine therapy.

#### FOREIGN

An asterisk (*) before a title indicates that the article is abstracted Single case reports and trials of new drugs are usually omitted below

#### British Medical Journal, London 2:759-794 (Nov 29) 1941

*Combined Active and Passive Immunization Against Diphtheria Control of Epidemics in the Field F Fulton, A Q Wells, Joan Taylor and C S Wilson —p 759
Industrial Medical Services in Great Britain Critical Survey D

Stewart -p 762

Stewart -p 762
"Ether Convulsions" H J Brennan -p 765
Encopresss (Incontinence of Feces) in Children C Burns -p 767 Macrocytic Anemia Following Gastroenterostom, A S Gordon and J Japa -p 769
Geographic Distribution of Gastric and Duodend Ulcers in British

Isles with Notes on Etiology of Peptic Ulcer B M Nicol-p 780

Immunization Against Diphtheria - Fulton and his co-workers attempted to prevent the spread of diphtheria in a closed or semiclosed community by detecting all carriers and segregating them until the remaining persons acquired an ade-They adopted the following method quate active immunity when an outbreak was evident in a school 1 Swabs taken from the nose and throat of every child and teacher in nonresidential schools and of every person in residential schools were cultured on tellurite blood agar, and diphtheria bacilli were typed All strains were tested for virulence to guinea pigs 2 At the same visit all children were given subcutaneous injections of 0.1 cc of alum precipitated to old into the left arm and 350 to 500 umts of refined diphtheria antitoxin globulin into the right arm 3 All carriers were isolated or segregated when the results of the swab culture were known 4 Four weeks later all children including the carriers, were given 03 cc of alum precipitated toxoid into the right arm 5 All carriers were allowed to return to school two weeks after the second moculation. They were permitted to mix freely, but in residential schools they were forbidden to participate in games with visiting teams. Any carrier from whom three consecutive swabs negative for diphtheria bacilli when cultured on tellurite blood agar were obtained before the end of the six weeks of segregation was allowed to return to school. This technic was adopted in seven outbreaks of diphtheria. The population at risk was about fifteen hun dred Each outbreak ceased immediately Only 5 new infections occurred after the first combined injection. The method protects the children at once, and the closing of schools becomes unnecessary

2:795 836 (Dec 6) 1941

Observations on Some Normal and Injurious Effects of Cold on Skin Observations on Some Aormal and Injurious Effects of Cold on Skin and Underlying Tissues I Reactions to Cold and Injury of Normal Skin T Lewis —p 795

Tailure of In Vitro Tests as Guide to Value of Stored Blood P L Mollison and I Maureen Young —p 797

"Wound Phagedena Report of Two Cases A Callum and A Duff

*"Wound Phagedena ---p 801

Enuresis in Adolescents R C Browne and A Ford Smith -p 803 Combined Intranterine and Extrauterine Pregnancy Case R. Leech -p 805

Unusual Reticulocytosis in Untreated Case of Pernicious Anemia W T Cooke -p 806

"Wound Phagedena."-Callam and Duff report 2 cases of a spreading infection of the skin and subcutaneous tissue which arose from an infected wound or sinus. The condition appeared to be one manifestation of a clinical entity, such as postoperative cutaneous gangrene and similar conditions, closely related to the "phagedena" of former times. The infecting agent was an anaerobic streptococcus associated with Proteus vulgaris The condition was so rapidly progressive in I case as to be almost mevitably fatal, death occurring on the twenty-first postoperative day. Cure was effected in the other case by wide excision of the lesion

#### Lancet, London

2:689-718 (Dec. 6) 1941

*Trostlite and kindred III R Greene -p 689
*Response to Vitamin K Liver Function Test. R Kark and A W

Souter -p 693 Preservation of Liquid Complement Scrum G M Richard on -p 696

Mammars Caremonia Response to Implantation of Male Hormone and Progesterone A A Losser -p 698

Frostbite-Greene states that the conditions of the present war have produced two disorders, immersion foot and shelter foot and that these are closely related to frostbite and to trench Shelter foot was often seen among shelter dwellers in

London in 1940 and 1941 who sat up all night without compensating rest in a horizontal position during the day. Immersion foot was encountered in persons who, after a shipwreck spent a long time in waterlogged boats. In shelter foot the swelling of the feet is painless at first. After a while the swelling extends up the leg The condition did not arise in wardens who, though exposed to the same degree of cold and damp, were frequently on their feet. The wooden bars of the deck chairs used by most of the patients exerted prolonged pressure on the popliteal fossa, causing venous stagnation and increased capillary permeability. Immersion foot is almost identical with trench foot, and its causes are the same, cold, heat after cold, dampness, venous stagnation, wind, anovia, mitritional deficiency and trauma all may play a part. In true frostbite the immediate cause is cold, frequently aggravated by wind and anotia. In trench foot and immersion foot dampness, associated with cold and venous stagnation, is probably the most important factor. Though the four conditions have causes which vary in relative importance they act through a common channel -transudation from damaged blood vessels. One can usually prevent them by bearing in mind their causes depends on the stage at which it is undertaken. The premonitory symptom of frostbite of the face may be a white patch, which can be cured by the application for a few seconds of a warm ungloved hand If the foot or the hand becomes numb the boot and sock or glove must be removed and the limb warmed by placing it inside another man's clothing. Rubbing the affected parts is extremely dangerous. If the tissues are dead they are beyond care, but if they are alive warmth, never greater than that of the human body, will quickly restore circulation If these measures fail, the affected part should be cleansed gently, painted with an active antiseptic (proflavine), wrapped in sterile dressings and in many layers of wool and rested Antitetanus serum, hot food and drinks, extra clothing, comparative warmth and security and, if the frostbite has occurred above sea level, pure oxygen are indicated. Thereafter, a policy of mactivity should be pursued unless sensis develops, when it should be treated like sepsis from any other cause Amputation, without sepsis, is seldom necessary and never urgent. It may be advisable later for esthetic or orthopedic reasons, but the question should be left to the judgment of a surgeon working amid the conveniences of a hospital at

Response to Vitamin K -- According to Kark and Souter. of 200 patients suspected of having hypoprothrombinemia the clinical diagnosis in 51 was portal and biliary cirrhosis, catarrhal jaundice, toxic or infectious hepatitis and intense jaundice In assessing the type and extent of the hepatic disorder in these patients the authors determined the initial level of the blood prothrombin and its character and degree of response after the administration of vitamin K. There were five types of response In patients with intense jaundice the low blood prothrombin level returned to normal quickly after vitamin K therapy. This favors a diagnosis of obstructive jaundice Patients with gross hepatic disease failed to respond to vitamin K therapy Apparently when the blood prothrombin concentration is less than 30 to 35 per cent of normal, advanced hepatic failure is probable This is a grave prognostic sign. Patients with a lowered blood prothrombin level which rose somewhat but remained fixed at a subnormal level despite repeated administration of vitamin K had acute or subacute parenchymatous hepatic damage of a moderate and variable degree. For patients in whom the blood prothrombin level gradually rose with treatment, coincident with chinical improvement, the diagnosis was infective cholangitis, catarrhal jaundice, acute or toxic hepatosis or obstructive jaundice complicated by an infective process When the prothrombin level fluctuated at a subnormal level which was above the threshold for hemorrhage, irrespective of therapy, the patients had chronic and long-standing hepatic disease, usually unassociated with jaundice. For patients with hepatic disease who responded incompletely or not at all to vitamin K therapy transfusion of fresh blood or fresh plasma was the only therapeutic measure that increased the prothrombin concentration of the blood. Such transfusion should be employed, before and after operation, if any surgical procedure is necessary

# Ophthalmologica, Basel

102:193-256 (Oct.) 1941. Partial Index

Photographic Determination of Depth and Volume of Anterior Chamber of Human Eye. M. Heim.-p. 193.

Cicatricial Shrinkage of Conjunctiva as Industrial Lesion in Dyers. R. Brückner.—p. 221.
Senile Changes in Eye. F. P. Fischer.—p. 226.

Cicatricial Shrinkage of Conjunctiva in Dyers.-Brückner describes bilateral cicatricial shrinkage of the conjunctiva in 2 aged men who for several decades had worked in dyeing and cleaning establishments. The development of the cicatricial changes had apparently been very gradual. Both men denied direct corrosion by chemicals or a severe conjunctivitis. Tra-choma could likewise be excluded. The disorder is apparently benign in contradistinction to the disorders of the pemphigus group and to the "essential" conjunctival shrinkage. The condition differs in pathogenesis and course from all hitherto described disorders with similar ophthalmologic symptoms. The author mentions some of the chemicals used in dyeing establishments, such as sulfuric acid, hydrochloric acid, acetic acid, formic acid, chlorine, ammonia, chrome, sulfur, aniline dyes and potassium cyanide, and suggests that some of these substances may be present in the form of gas or steam, either pure or in a chemical combination, in the air of dyeing establishments. They may be present in such a low concentration as not to cause any particular annoyance, but they may come in contact with the conjunctiva either directly or mixed with the lacrimal fluid, They may thus injure the epithelium and probably the subepithelial tissue. In view of the rarity of the condition, the author suggests that individual predisposing factors, such as metabolic changes in the subconjunctival tissues during the physiologic involution of senescence, may play a part.

## Arch. Arg. Enf. d. Ap. Res. y Tuberc., Buenos Aires 9:283-334 (Oct.-Nov.) 1941. Partial Index

*Bronchocinematography: Its Application to Study of Dynamics of Bronchi. M. R. Castex, E. S. Mazzei and M. Malenchini.—p. 307.

Bronchocinematography—Castex and his collaborators state that there are no reports in the literature on the performance of bronchography by means of roentgen cinematography. They used Abreu's technic, in which a camera with an objective opening which varies within 1:1.4 and 1:0.85, a tension of 100 kilowatts, an intensity within 50 and 100 milliamperes and a tube of 10 kilowatts or a rotatory anode of 20 or 40 kilowatts are used. By this technic the changes of the bronchi during the consecutive phases of every respiratory cycle can be photographed. The films can be projected on the screen with normal or retarded speed. The functioning time of the apparatus is twelve seconds when 50 milliamperes and 100 kilowatts are used and 5 seconds when 100 milliamperes and 100 kilowatts are used. Any good photographic emulsion can be used. The roentgen cinematographic results confirmed previous observations of the authors in which they found that normal bronchi have two types of respiratory movement. Passive movements are pulsations from the heart, the aorta and the pulmonary artery and also from the esophagus during deglutition. Active movements include changes in the length and caliber of the bronchi, peristalsis, undulation and torsion. The normal bronchi are elongated and dilated during inspiration and shortened and narrowed during expiration. They exhibit inspiratory movements for fanwise dispersion of air toward the alveoli and movements of torsion near the lower lobes and of retraction during expiration. The inspiratory changes of the caliber of normal bronchi or of bronchi in a pathologic state are visible during roentgen cinematography. In cases of chronic bronchitis the caliber of the bronchi either does not increase during inspira-tion or increases but little. The degree of impaired bronchial dilatation depends on the more or less acute local inflammation. In bronchiectasis the caliber of the bronchi either does not increase or it diminishes during inspiratory elongation of the bronchi. In cases of bronchial asthma the bronchocinematographic picture is difficult to interpret. The particular changes in these cases are due to forced respiration in the presence of hypertonicity of the bronchopulmonary myoelastic system. In Ayerza's disease the bronchial changes are predominantly of the type of chronic bronchitis, and to a lesser degree of the type observed in bronchial asthma.

# Archivos Argentinos de Pediatría, Buenos Aires 16:435-546 (Nov.) 1941. Partial Index

Postvaccinal Polyneuritis and Retinitis in Child Aged 6. J. P. Garaba, J. J. Murtagh and J. C. Traversaro.—p. 435.

Leukemia with Embryonal Cells Probably of Congenital Origin.

M. Acuña and Maria Teresa Vallino.—p. 443.

Prognostic Value of Different Elements in Whooping Cough Bronch

pneumonia. F. Bazán, R. Maggi and E. Sujoy.-p. 449. *Sulfaguanidine in Diarrheas of Infants and Young Children. F. J.

Menchaca.—p. 473.
Comparative Study of Mantoux Reaction with Human and Bovine Tulerculin. F Escardo and R. Rabanaque Caballero,-p. 489.

Sulfaguanidine in Diarrheas of Children.-Menchan reviews the literature on diarrhea of infants. Marshall and his collaborators at Johns Hopkins found a series of chemical compounds with intense antibacterial power in the intestinal contents. Of these sulfaguanidine appeared to be most efficacious. The author reports the histories of 20 infants and children from 3 months to 6 years of age in whom sulfaguanidine was used to counteract diarrhea. The favorable results obtained justify its further use.

## Boletín de la Soc. de Obst. y Ginec., Buenos Aires 20:643-678 (Dec. 10) 1941. Partial Index

*Magnesium Sulfate in Hyperemesis of Pregnancy. D. E. Nölling and R. Caso .- p. 670.

Magnesium Sulfate in Hyperemesis in Pregnancy.-Nölting and Caso treated 50 pregnant women with acute and subacute vomiting by intravenous injections of 1 or 2 cc. of a 50 per cent magnesium sulfate solution in 10 or 20 cc. of physiologic solution of sodium chloride. The patients were in the first three months of pregnancy. The previous treatment, by providing rest to the stomach, administration of sedatives, intravenous or subcutaneous injection of dextrose solution and of physiologic solution of sodium chloride, and the administration of insulin and liver extract were of no avail. Seven patients in the group of 22 multigravidas had previously had therapeutic abortion because of acute vomiting. The injections were administered slowly. They were given twice a day, thirty minutes before breakfast and supper, for ten or fifteen consecutive days. An abundant diet with solid food and fruit juices was given. Patients with dehydration and moderate hepatic insufficiency were given subcutaneous injections of dextrose and physiologic solution of sodium chloride, insulin and liver extracts. Vomiting was controlled early in the course of the treatment in 32 cases. In 18 in which vomiting diminished but was not controlled within ten days two daily intramuscular injections of 5 cc. of a 15 per cent magnesium sulfate solution were administered, one an hour before breakfast and the other an hour before supper, for ten more days. All the patients were cured and were able to tolerate pregnancy up to term The treatment is harmless, well tolerated and effective. Failing heart constitutes the sole contraindication.

#### Día Médico, Buenos Aires

13:793-820 (Aug. 11) 1941. Partial Index

*Magnesium Sulfate in Seasickness. José Maris Poch,-p. 793.

Magnesium Sulfate for Seasickness.-Poch injected intramuscularly a solution consisting of 1.25 Gm. of magnesium sulfate, 0.05 Gm. of caffeine and 0.25 mg. of atropine. injections were given at intervals of twelve hours. As a rule two injections were sufficient; in rare instances a third injection was required. The observations were made on healthy sailors subject to a severe form of seasickness. The symptoms consisted of nausea, vomiting, profuse sweating, bradycardia, from tal headache, with or without photophobia, and a fall in the arterial blood pressure. The symptoms greatly diminished within the first four hours after the first injection and were controlled by the second injection. In a few cases in which nausea persisted it was controlled by the third injection. Arterial blood pressure promptly returned to normal. The patients were able to continue at work. There was no recurrence. The injection produced a moderate amount of jair, which lasted for a continue at works. which lasted for several hours.

## Revista Brasileira de Biologia, Rio de Janeiro 1:365-474 (Dec.) 1941. Partial Index

*Histoplasmosis in Child: Case. E. Villela and Madureira Para.-p. 449.

Histoplasmosis in Child .- The case reported by Villela and Madureira Pará is the thirteenth in the medical literature, the fifth of the disease in a child and the first in Brazil. The disease is probably more frequent than is believed. It may be mistaken for visceral leishmaniasis, particularly in regions where that disease is endemic. The disease is fatal. The authors' patient, a boy aged 3 years, lived in unhygienic conditions among dogs and cats. He presented fever and progressive debility for one month. Later there developed diarrhea with blood in the feces and progressive emaciation. The treatment consisted in administering polyvalent antidysenteric vaccines and vitamins A and D. Jaundice and red spots over the body appeared one week before death. The diagnosis was made from the microscopic study of the liver, which was enlarged, waxy in color and friable. The microscopic appearance was typical of histoplasmosis. The parenchyma of the liver presented enormous proliferation of reticuloendothelial cells, which were engorged with Histoplasma capsulatum. The monocytic cells were also increased and contained histoplasma. Identification of H. capsulatum and its differentiation from leishmania in human tissues is best accomplished by the use of Heidenhain's iron hematoxylin stain, the Gienisa, Gram and Goodpasture stains and the double impregnation method of Del Rio-Hortega. The rarity of histoplasmosis in Brazil may be seen from the fact that, of 186,000 cases in which liver specimens were examined microscopically in the laboratory of the Yellow Fever Service, in only 1 has this blastomycosis been found, while in 131 cases in the same series visceral leishmaniasis was discovered.

#### Revista Médica de Chile, Santiago 69:707-790 (Nov.) 1941. Partial Index

*Bite of Wheat Spider (Latrodectus Mactans). R. Gajardo Tobar,p. 707.

*Treatment of Ringworm Infections of Scalp with Gonadal Substances.

Yanez, Weinstein, Bravo and Guznán.—p. 713.

Serologic Reactions of Syphilis and Their Interpretation in Cases of Venereal Lymphogranuloma. P. Chana Cariola.—p. 715.

Angioneuromatous Tumors. L. Marin Couchot and I. Mena.—p. 719.

Black Widow Spider Bites .- Gajardo Tobar describes observations in 23 cases of bite by the black widow spider, Latrodectus mactans, a species found throughout Western America from California to Patagonia. The spiders are most numerous during the dry months. Harvesters, stookers and threshers are most exposed. The bite produces a sensation of lancing, and if the cause is searched for the spider may be found in the clothing. The venom of Latrodectus mactans is neurotropic. The bite is followed by a ten minute latent period, after which the local pain recurs and rapidly increases to involve the entire body. Clonic contractions, tremors, spasmodic movements and convulsions follow. The symptoms and pains are intermittent and reach their maximum intensity in the waist, arms and legs. The muscular contractions and the excruciating pain bring about rigidity of the abdomen and of the chest. patient experiences precordial and abdominal oppression and has the feeling of approaching death. There may be disorientation, hallucinations, delirium, debilitating sweats, profuse salivation and lacrimation. The sensitivity of the skin and the reflexes are exaggerated. The respirations are rapid and shallow. Temporary tachycardia is followed by bradycardia. The arterial pressure increases and later falls. Albuminuria and uremia develop. Intestinal and vesical paralysis develop, and the urinary secretion is diminished. There may be priapism, ejaculations and enuresis. After a few hours the symptoms abate somewhat, only to return in paroxysms. The disorder persists for a week. The convalescence is characterized by physical and mental fatigue. The literature reports fatal cases, but as a rule the patients recover. The bite confers a temporary immunity. In animals the immunization persists for about three months. Persons have been bitten by Latrodectus mactans several times and each time have had all the symptoms of poisoning. The treatment is chiefly symptomatic. Hot baths, morphine and atropine sulfate are employed to counteract pain, convulsions and spasms. Sparteine and camphor liniment are administered as cardiac stimulants. Physiologic solution of sodium chloride, dextrose solution and thiamine hydrochloride are given to counteract the intoxication. It would be most desirable to obtain a specific serum as recommended by Vellard and as prepared by Troise in Argentina. The difficulty in producing a specific serum is the insufficient quantity of venom available.

Gonadal Substances in Ringworm Infections of Scalp. -Yañez and his collaborators point out that ringworm infections of the scalp occurring chiefly in children of school age are more or less contagious, depending on the species of fungus. Infections with some species tend to spontaneous recovery after several months. A cure in one region may be accompanied by infection in another, so that the disorder continues for months or years. To obtain definite results it is necessary to resort to depilation of the scalp. With the exception of favus, ringworm infections of the scalp disappear spontaneously-at puberty. This fact suggested the possibility of reproducing the puberal condition which favors elimination of the parasite by the use of estrogens. Yañez injected estrone into a menopausal woman with tinea tonsurans. The infection disappeared in the course of ten days after the administration of five doses of estrone. The authors administered gonadotropic substance to children with ringworm infections of the scalp. The lesions of tinea showed changes from the fourth or fifth day after the beginning of the treatment. The scales disappeared, the diseased hair fell out and the plaques cleared up. The cure was usually complete on the tenth or the twelfth day. There was no apparent difference in the employment of male or of female gonadotropic substance for persons of either sex. The treatment has been used for 34 children (25 boys and 9 girls); failure was recorded in the treatment of 3.

#### Revista Médica de Córdoba, Córdoba 29:609-650 (Nov.) 1941. Partial Index

*Lymphogranulomatosis Maligna During Childhood, A. A. Ferraris,p. 609.

Pseudomiliary Colloidal Degeneration of Skin: Case, F. Strada and M. Rodeiro .- p. 621.

Lymphogranulomatosis Maligna in Childhood.—Ferraris believes that malignant lymphogranulomatosis is relatively frequent. Of every 4 boys with enlarged cervical lymph nodes I was found to have Hodgkin's disease. The author reports observations on 15 children, aged 5 to 12 years; 14 were boys and 1 a girl. Preponderance of the male sex has been observed by other investigators. The onset is generally insidious. There is a gradual enlargement of the cervical lymph nodes; the general condition is impaired; the child lacks appetite, is pale and at times has fever. In 70 per cent of the cases the author observed splenomegaly and in 60 per cent hepatomegaly. The Wassermann and Kahn reactions were negative in all. The Mantoux reaction was positive in only 2 cases; this incidence was approximately that seen in healthy children. The results of Gordon's test at times contradicted the results of the microscopic examination of the nodes. Sternal puncture likewise proved unreliable. Biopsy of an involved node is the most reliable diagnostic method. The treatment consisted in fractional roentgen irradiation; in some cases of late disease sulfonamide derivatives were given. The disease always terminated fatally in one to five years.

#### Revista Médica de Rosario, Rosario de Santa Fe 31:1069-1182 (Nov.) 1941. Partial Index

Effects of Digitalis on Electrocardiogram and Its Clinical Significance.

C. Alvarez and A. Delle Vedove.—p. 1069.
*Early Diagnosis of Cancer of Breast. J. Benzadón.—p. 1098. Spontaneous Hemopneumothorax. A. B. Arroyo .- p. 1119.

Treatment of Mercurial and Bismuth Stomatitis by Ascorbic Acid. J. V. Marin.-p. 1127.

Benign Lymphocytic Meningitis. L. Levit, E. S. Weiler and J. Luppi. -p. 1135.

Early Diagnosis of Cancer of Breast.-A hard, woody painless tumor whose borders are vaguely defined, suggests, according to Benzadón, a malignant degeneration of a benign tumor. The hard, woody consistency, which does not permit folding while one picks the tissue up between the hands, is characteristic of malignant growth. Retraction of the nipple may appear later than the aforementioned signs; its presence in a tumor which shows no signs of inflammation confirms the suspicion of malignancy. Pinching of the skin over a tumor may reveal adhesion to the skin otherwise not observed. This fold test indicates that the neoplasm is malignant. Walther's sign or the wrinkle sign has the same significance. A positive Halsted sign is of great value. A black spot of inklike shadow with irregular outlines on transillumination suggests a malignant tumor. Pneumomastic roentgenoscopy (introduction of air, oxygen or carbon dioxide before roentgenoscopy) can aid in the early diagnosis by revealing a shadow more opaque than the gland with indistinct outlines and at times with diminution of one of the clear spaces. Mammography with the injection of a contrast medium in cases of malignant tumors is not innocuous. Punch biopsy with the finding of malignant cells confirms the diag-A negative biopsy does not establish the diagnosis. nosis. Punch biopsy may be valuable in differentiating a solid from a liquid tumor and a neoplasm from a chronic suppurative process. The author does not recommend biopsy; he prefers a complete extirpation of the tumor and a microscopic examination. Early diagnosis is possible, provided the patient consults a physician early enough.

Ascorbic Acid in Mercurial and Bismuth Stomatitis.—Marin observed mercurial and bismuth stomatitis among syphilitic patients. Absence of ascorbic acid from their blood and urine suggested the advisability of administering the acid. His experience with ascorbic acid therapy in 10 cases of syphilis suggests that the acid has a detoxicating effect on the mercurial salts probably because of its reducing action. Ascorbic acid cures mercurial and bismuth stomatitis. It permits continuation of serial mercury and bismuth therapy for patients who do not tolerate compounds of these metals. Injection of large doses of ascorbic acid produces rapid, optimal results; its oral administration is not effective.

# Revista Med. Soc. de Sanidad y Benef. Municip., Havana 1:79-158 (Oct.-Dec.) 1941. Partial Index

*Whooping Cough in Havana: Preventive Vaccination. A. Argudin Garcia,-p. 103.

Vaccination in Whooping Cough.—Argudín García, head of the Municipal Department of Infant Hygiene of Havana, administered vaccines against whooping cough to 1,556 infants who were observed in the department from January to July 1941. The vaccine used was prepared with pure pertussis antigen. It was administered subcutaneously in doses of 0.25, 0.5, 0.75 and 1 cc., with intervals of three days. No untoward reactions occurred. In a large number of children the hemogram after vaccination changed to that of the type of whooping cough, showing acquired immunity. Whooping cough developed in only 5 per cent of the vaccinated children, and it was attenuated. The morbidity and mortality diminished.

#### Zentralblatt für Chirurgie, Leipzig

68:1473-1576 (Aug. 9) 1941. Partial Index

Treatment of Uncomplicated Fracture Luxations in Ankle Joint. A. Buzello.—p. 1485.

Histologic Aspects of Meniscus After Accidental Injuries. W. Ceelen.

*Involvement of Arteries in Intermittent Claudication of Arm: Treatment by Periarterial Sympathectomy. K. Ebhardt.—p. 1499.
Fenestrated Plaster Bandages and Hoop Bandages. J. C. Lehmann.

Experiences with Close Range Roentgen Irradiation According to Chaoul. H. Schneider. p. 1519.

*Etiology and Therapy of Tendovaginal Panaritium. E. R. Welcker.

---р. 1564.

Periarterial Sympathectomy for Intermittent Claudication.—Ebhardt reports that a youth aged 19 sustained a fracture of the radius, which was treated with a cast and which healed in a good position. A swelling of the arm remained, and movement of the wrist joint was slightly impaired. Several months later attacks developed during which the hand and arm became blue, cold and insensitive. A thrombotic closure of the axillary vein was considered, but, since the symptoms responded to conservative measures, intervention appeared unnecessary. Two years after the fracture, while swimming, the patient suddenly had a circulatory disturbance in the arm. The member became cold, cyanotic, insensitive and painful. The attack lasted

for half an hour. Considerable exacerbation of symptoms took place. An operation disclosed that the disorder was the result not of venous thrombosis but of a spasm of the vessels which resulted from a chronic induration of the axillary connective tissue. Freeing of the artery failed to improve the circulation A periarterial sympathectomy was successful in ameliorating the condition. The author does not consider sympathectomy as the procedure of choice for the treatment of intermittent claudication but believes that it is advisable only for some particularly constituted patients.

Tendovaginal Panaritium.—According to Welcker, clinical observation and bacteriologic studies demonstrated the etiologic significance of the subcutaneous panaritium in the development of the tendovaginal abscess. Early and correct surgical treatment of the subcutaneous panaritium is the best prophylactic measure against the involvement of the tendon. Simple opening of the proximal end of the tendon sheath (modification of Iselin's method) as treatment of tendovaginal suppuration of the second and fourth fingers with suspension of the splinted arm produced surprisingly favorable results in cases in which the tendon itself had not become involved. The results of this intervention were especially favorable in regard to functional restoration.

# Nordisk Medicin, Stockholm 12:3227-3306 (Nov. 15) 1941. Partial Index Hospitalstidende

*Adult or Idiopathic Myxedema and So-Called Benign Hypothyrosis. E. Jarløv.—p. 3237.

Passage of Sulfonamide Derivatives from Blood to Spinal Fluid. P. Bechgaard, E. Lohse and E. Vermehren.-p. 3247.

Artificial Changes of Cerebrospinal Fluid (Apart from Admixture of Blood) During Evacuation of Larger Amounts of Cerebrospinal Fluid with Simultaneous Insufflation of Air. E. Lund and A. V. Neel.—p. 3249.

Adult or Idiopathic Myxedema and So-Called Benign Hypothyrosis.—Jarlov compares classic myxedema (British Myxedema Commission) and benign hypothyrosis (Hertoghe) and reports 78 cases of so-called hypothyrosis. He concludes that clearcut myxedema is rare. Certain symptoms which must be regarded as symptoms of classic myxedema occur in as many patients with normal basal metabolic rate as in patients with a lowered rate. This is true of the myxedematous habitus, which occurred in only 1 of 7 younger patients and in 4 of 8 older patients with a lowered rate and in 6 of 29 younger patients and in 8 of 17 older patients with a normal rate. Impairment of memory, edema, dryness of the skin, loss of hair, brittleness of the nails, oliguria and amenorrhea were relatively infrequent symptoms. Dryness of the skin affected the younger patients with a normal rate more than any other group. Nervousness and headache were relatively frequent. Constipation and adiposity occurred in more of the groups with a normal rate than in those with a lowered rate. The sensation of cold played a relatively important part in the groups with a lowered rate, but in all the groups it responded well to treatment with thyroid. as did also the tired feeling, important in all groups but wholly absent in some patients with otherwise typical myxedema. The author asserts that adiposity does not play the part in hypothyrotic symptoms formerly ascribed to it. There were relatively many patients with a normal basal metabolic rate and symptoms like those of classic myxedema who reacted so favorably to thyroid therapy that they must be assumed to have had a thyroid deficiency. A lowered rate must therefore be regarded as a symptom coordinated with the other symptoms. In the material all transitions were represented from cases with the symptoms of classic myxedema to cases characterized by only one or a few of these symptoms. Certain cases of asthenia and of stubborn constipation, cases interpreted as of muscular rheumatism, some cases of edema and some others were included. Neither the symptoms named nor the lowered metabolic rate can determine the indications for thyroid therapy or the does only the reaction to the substance in each case can be applied as the criterion. He suggests that with the present status of knowledge the designation hypothyrosis be maintained for a number of pathologic conditions having certain common feature, and forming an indefinitely limited group which can be divided into two indefinitely limited subgroups, malignant and benice hypothyrosis.

# Book Notices

Subacute Bacterial Endocarditis. By Emanuel Libman, M.D., Consulting Physician, the Mount Sinai Hospital, New York City, and Charles K. Friedberg, Adjunct Physician, the Mount Sinai Hospital Edited by Henry A. Christian, A.M., M.D., LLD (Repeinted from Oxford Loose-Leaf Medicine) Cloth Price, \$2.75 Pp. 108, with 19 illustrations New York, Toronto & London Oxford University Press, 1941.

This excellent summary of subacute bacterial endocarditis is based in large part on Libman's own long experience with the disease. He writes, for example, that between 1899 and 1930 he had observed at least 1,000 cases. The book is subdivided into sections on definition and classification of endocarditis, classification of bacterial endocarditis, the various aspects of subacute bacterial endocarditis including etiology and pathogenesis, pathology, clinical features, diagnosis, cases of mild subacute bacterial endocarditis, bacteria free stage of the disease, transitional endocarditis, recurrent endocarditis, prognosis, cause of death, prophylaxis and treatment. There is a bibliography of one hundred and ninety-eight references.

There are many pertinent observations concisely made, a few examples of which in the first fifteen pages are:

Bacterial endocarditis is subdivided into acute and subacute bacterial endocarditis. As implied in the terminology, these subdivisions are based on the duration of the disease, the acute form including cases with a course of, in general, less than six weeks, and the subricute, cases with a course of more than six weeks. This differentiation, however, is not an arbitrary one except in certain borderline cases. The two forms of bacterial endocarditis are, as a rule, sharply distinguishable both as to their clusative agents and as to their clinical and pathological features. The acute cases are due almost always to pyogenic organisms, while the subacute cases are caused by organisms of relatively low virulence.

Bacterial endocarditis is a terminal or terminating complication in about 10 to 20 per cent of cases of theumatic heart disease. . . Subacute bacterial endocarditis occurs much more frequently than acute bacterial endocarditis. In over 90 per cent of the cases the causative organisms are nonhemolytic streptococci, usually the alpha (viridans) and occasionally of the capute (explane) the properties.

of the gamma (anhemolyticus) variety.

Subacute bacterial endocarditis may appear in the presence of a mixed infection. The most common combination is an endocarditis due to non hemolytic streptococci with a secondary pneumococcus bacteremia, usually secondary to a lobar pneumonia. We have observed also a secondary implantation of Staphylococcus aureus on valvular vegetations due to non-hemolytic streptococci

Agonal and postmortem blood cultures usually are unreliable.

An adequate quantity of blood must be drawn, at least 20 cc, and a variety of media employed. Aerobic and anaerobic cultures should be made. Since the organisms may enter the blood stream from the vegetations only intermittently, it may be necessary to take repeated blood cultures in order to find the causative organism.

Blood cultures should be observed for a minimum of four days, but it is preferable to keep them routinely for eight to ten days. Sometimes it is advisable to observe the cultures even longer, for, especially after chemotherapy, such as with sulfamiliamide or sulfapyridine, growth of the organisms may not be discovered until after two or three weeks. The blood cultures even may remain completely sterile as long as the patient is under treatment with these drugs while positive cultures are obtained subsequently, when they are stopped. Recently reported studies (Strauss, Lowell and Finland) indicate that by the employment of para amino benzoic acid, which inhibits sulfonamide action, it will be possible with such a negative result as is obtained to determine whether bacteria are really absent. This interesting substance has most effect against sulfamiliamide, less against sulfapyridine and still less against sulfathiazole.

Usually the site of origin of the endocardial infection is not evident. Chinical observation leads us to the assumption that the portal of infection is, as a rule, about the teeth or in their roots, in the tonsils, in the accessory sinuses or in other parts of the upper respiratory tract.

The sites of localization of the bacterial endocarditis are determined chiefly by mechanical factors. There is evidence that bacteria settle and multiply wherever they are sprayed forcefully on a receptive area.

Active rheumatic fever and subscule bacterial endocarditis may occur simultaneously in the same patient and even on the same valve.

Lemann has reported a case in which the disease developed in a mitral valve which had been made insufficient because of infarction of the left posterior papillary muscle due to a coronary artery thrombosis.

Of special interest is the association of subneute bacterial endocarditis with bicuspid aortic salves

Congenital anomalies are next in importance to rheumatic deformities as predisposing factors of bacterial endocarditis

The oldest patient we have seen was 74 and the youngest a child of 4. There is no significant predilection as regards sex, but in our experience males are affected somewhat more commonly

Here and there one might like a little more ample discussion about details, and one might question whether a few of the cases quoted, particularly case 2 and case 3 on page 82, are sure instances of the disease with recovery. However, the volume can be wholeheartedly recommended

The Story of Clinical Pulmonary Tuberculosis. By Lawrason Brown, M D Cloth Price, \$2.75. Pp. 411, with portrait Baltimore: Williams & Wulkins Company, 1941.

For approximately two decades Dr. Lawrason Brown was regarded as the dean of authorities on clinical pulmonary tuberculosis in this country. Large numbers of tuberculous patients used his book entitled Rules for Recovery from Tuberculosis almost as their Bible. Medical audiences throughout the country listened to his addresses, and those who were fortunate enough to attend the Trudeau School of Tuberculosis reveled in his inspiring lectures on the history of clinical pulmonary tuber-This new book will be heartily welcomed by the members of these various groups and by many other readers. The historical material presented is authentic, and Dr. Brown's own views and opinions are of great value, since he was a physician of unusually good judgment It is particularly fitting that Dr Homer L. Sampson should have contributed the chapter on x-rays, since it was he who was called almost from his bed as a patient in the Trudeau Sanatorium in 1912 to operate the first x-ray equipment installed in that institution From that time to the present he has worked unceasingly at this post. No physician ever had a more loyal supporter and collaborator than Dr. Brown had in Dr. Sampson. In many ways and on numerous occasions Dr. Brown expressed his appreciation of Dr. Sampson's work. They labored together in learning how to improve the quality of the finished x-ray plate and film and how to interpret the shadows which it revealed. After the regular day's work they could be found in the x-ray laboratory, working until late at night to develop the roentgenographic phase of examination of the chest. Indeed, they inspected the plates and films of the chests of nearly half a million persons, and from their arduous work came numerous valuable contributions Twenty years ago Dr. Brown manifested a great deal of enthusiasm for surgical methods in the treatment of pulmonary tuberculosis and was particularly loud in his praise of the splendid work of Dr. Edward W. Archibald of Montreal. They frequently conferred on this subject, and Dr. Brown referred patients to Dr. Archibald when he thought they would be benefited by surgical intervention. He recognized not only the great skill which Dr. Archibald possessed but his studious quality, which caused him to be regarded as one of the best informed chest surgeons in North America Dr. Archibald's chapter, on the development of surgical methods in treatment, is an important contribution to the book. Dr. Brown spent many years compiling historical material on all phases of clinical pulmonary tuberculosis, and it is fortunate for the medical profession that this has been published in book form so that it will be preserved and available to physicians everywhere An excellent bibliography is included

Ober Grundumsatz und Sexualhormone nach Kastration: Klinische und experimentelle Studien. Von E Hart Hansen Denne Afhandling er af det lægevidenskabelige Fakultet antaget til offentlig at forsvares 100 den medicinske Doktorgrad, København, 1940. Paper Price, 12 Danish kroner. Pp 211, with 30 illustrations Copenhagen. Ejnar Munksgaard, 1941.

Denmark in 1929 was the first state in Europe to introduce castration into the modern administration of justice. There castrates are legally obliged to submit to examinations conducted by the medicolegal council. The problem of the author, who was awarded the opportunity to reexamine castrates in the Institute of Legal Medicine, was to observe (1) the occurrence of castration obesity in legally castrated men in Denmark, (2) the behavior of the basal metabolism in legally castrated persons, (3) the relation between castration obesity and changes in the basal metabolic rate, (4) the excretion of gonadotropin, estrogen and androgen in the urine after castration, (5) the effects produced on rats by the estrogen and androgen detected in the urine and (6) the relation between the results of the hormone analyses and of the determination of basal metabolism and the results observed in routine examinations. The author's conclusions were based on observations on 45 castrated persons, 24 ambulatory, 12 under institutional observation and 9 in an asylum for the feebleminded. Causes of castration were feeblemindedness in 14 cases, psychopathy in 18, commitment to an institution in 12 and epilepsy in 1. His control material consisted of 14 healthy men, castrated women and men with other diseases

Hansen found that castration obesity occurred in only 15.4 per cent of his subjects, proof that weight changes in male castrates are not ordinarily significant. The basal metabolic rate was less than 90 per cent in 6 of 38 castrates. No important information concerning reduced function of the male gonads was revealed by the basal metabolism examinations. Castration obesity and decreased metabolism did not run parallel. Of 38 subjects examined, 1 with castration obesity and 4 without castration obesity showed a decreased basal metabolic rate: 5 with castration obesity and 28 without castration obesity were without a decrease in the rate. An increased excretion of sex hormone occurred after castration of men. Estrogen excretion was less in noncastrated men than in those who had been castrated. The urine of men contained smaller amounts of estrogen than that of women. In general, castrates excreted smaller amounts of androgen in the urine than normal men. Improved methods resulted in an increase in the amount of androgen which could be detected. Injections of androgen into castrated male rats produced an increase in weight of the prostate, the seminal vesicles and the penis. Injections of estrogen into female castrated rats caused doubling of the weight of the vagina and cervix. The results of the preceding experiments were compared with parallel experiments with androsterone in capons.

The author found no difference in the relationship between the results obtained in the determination of the basal metabolic rate and the results of the hormone analysis in subjects with a rate less than 90 per cent and those with a rate greater than 90 per cent. Obesity did not influence the results. These data, while of no value in reexamination of the individual, are in no wise derogatory to the application of castration on a legal basis. The hormone balance of the organism is influenced by postpuberal castration. This is evident from the increased excretion of gonadotropin and the decreased excretion of androgen and estrogen in the urine. The author states that this investigation has revealed no causal connection between androgen secretion and the remains of libido and potency of castrates.

It may be assumed that a metabolism of substances (related to cholesterol and provided with sex hormone properties) takes place in the organism. These substances exert a specific influence on the morphology and function of the secondary sex characters. This metabolism is under the influence of the gonads but does not stop after castration. Finally, the importance of such scientific investigations in a state such as Denmark, where castration is on a legal basis, is stressed.

Chinese Lessons to Western Medicine: A Contribution to Geographical Medicine from the Clinics of Peiping Union Medical College, By I. Snapper, Professor and Head of the Department of Medicine, Peiping Union Medical College, Peiping. With a foreword by George R. Minot, Professor of Medicine, Harvard University, Boston. Cloth. Price, \$5.50. Pp. 380, with 132 illustrations. New York: Interscience Publishers, Inc., 1941.

This book, written in a breezy, narrative style, does not purport to be a systematic study of the diseases characteristic of North China but is rather a record of the impressions of the author, a Dutch clinician with a worldwide reputation, during the first two years following his transplantation to the Peiping Union Medical College. These impressions are, however, in most instances carefully documented from the hospital records and are supported by many excellent illustrations and detailed case records.

Although Peiping is situated at a latitude of 40 north, about the same as that of Philadelphia, its diseases are largely tropical or semitropical, and one is struck, on first visiting the wards of the Peiping Union Medical College Hospital, with the preponderance of patients with acute infectious disorders. Dr. Snapper thus gives due prominence to relapsing fever, typhus and amebiasis, all of which lend color to the practice of medicine in China, but even more to kala-azar, the parasitic disease which places its mark all over internal medicine in North China and which is so frequent that it has to be considered in nearly every case.

The manifestations of cardiovascular disease in North China are considered in detail, and one of the common myths about China, i. e. that the Chinese, owing to the placidity of their dispositions, are not subject to hypertension, is disposed of. Essential hypertension, both benign and malignant, is common.

Arteriosclerosis, however, with the syndrome of angina pectoris and with coronary occlusion and myocardial infarction, is rare, and Dr. Snapper speculates about the relationship of the low cholesterol intake and the consequent low blood cholesterol concentrations in the Chinese to the reduced tendency to lipoid infiltration of the blood vessel wall, pointing out at the same time the relatively high figures for the unsaturated fatty acids, especially linoleic and linolenic acids.

There is an extended consideration of the anemias, concluding with the statement that, while macrocytic nutritional anemia is frequent, genuine pernicious anemia rarely occurs. Dr. Snapper also calls attention to the prevalence of diabetes mellitus and rickets, without noting that it used to be said of these disorders, as of hypertension, that they did not occur in China. With the establishment of the Peiping Union Medical College and of its hospital, to which Dr. Snapper refers as now one of the best modern teaching hospitals, the search for these conditions really began, and they appeared with about the same frequency as in the United States.

It is pointed out that every phase of clinical medicine in Peiping is influenced by the peculiar food situation, which leads to general undernutrition, with deficiencies of all the vitamins except those of the B complex. In North China the B complex vitamins are provided by the relatively large intake of a coarse, whole ground millet, in contrast to the diet of polished rice common farther south.

The book should be required reading for any one whose attention, for any reason, is being drawn to the problems of medicine in the Orient.

Xanthoma and Other Dyslipoidoses. By Fred D. Weidman, M.D., L. Napoleon Boston, M.D., Joseph Stokes, Jr., M.D., Howard W. Schaffer, M.D., Walter Freeman, M.D., and F. W. Sunderman, M.D. [Including Reprinted Articles from the Archives of Dermatology and Syphilology. Archives of Internal Medicine, American Journal of Diseases of Childred and Archives of Surgery.] Cloth. Price, \$3. Pp. 195, with Illustrations. Philadelphia: University of Pennsylvania Press, 1941.

In the introduction Weidman knits the thoughts that prompted these papers and their grouping and stresses the significance of "xanthoses and lipoid disturbances, related diffuse conditions and the growth in knowledge which has been so remarkable that nearly every branch of medicine has become involved to a greater or lesser extent by its ramifications; dermatology, internal medicine, surgery, ophthalmology, pediatrics, otolaryngology, stomatology, physiologic chemistry and pathology." The book contains an index aimed to correlate the biologic phases of xanthoma, particularly the pathologic data, and an article on the pathology of the yellowing dermatoses which is useful from the clinical angle because it will assist in the differential diagnosis of certain of its members from the xanthoma group. This work is recommended to all practitioners in medicine for its excellence and the broad scope of its correlation of xanthoma as a possible manifestation of a medical entity in the skin. The enlarged concept of dermatology, including xanthoma, acute disseminated lupus erythematosus (Libman-Sacks syndrome), the purpuras, tuberculids, drug eruptions and the lymphoblastomas easily fulfil their relationship to medicine in general as cutaneous medicine.

Semiologia do ovário com um estudo particular da chologia vaginal pile método de Shorr. Pelo Dr. Francisco Victor Rodrigues, professor de clínica ginecológica da Faculdade fluminense de medicina, Rio de Janello Cloth. Pp. 286, with 35 illustrations. Rio de Janelro: A Casa do Lirro Limitada, 1941.

This is an excellent study based on the literature and presenting first the embryology, anatomy, pathology and physiology of the ovaries, with few illustrations. After this portion the author goes into the chief material of the volume, which might better be entitled the functional examination of the ovaries. (The author does not include the direct physical examination of the ovaries, as the Portuguese title would suggest.) This illuminated by detailed studies of 36 of his own cases, including a number of excellent illustrations, some colored, especially of the vaginal smear method of Papanicolaou and Short, which the author interprets correctly and makes much use of. In addition to an extensive bibliography which shows an appreciation of the world literature up until late in 1941 the author includes the list of his publications in this general field of gynecology.

# Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF AUTHORITIES ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST

#### RENAL CALCULI AND SULFONAMIDES

To the Editor —The question of sulfonomide derivatives causing renal calculi has come to my attention recently through the queries of patients and I would appreciate information on the following. Does the formation of renal calculi have any bearing on the administration of sulfonamide drugs? If so, does the drug predispose to the formation of the usual type of stone or do the crystals of the drug collect to form a foreign body in the kidney pelvis? Does the dose of the sulfonamide drug influence the formation of calculi? And, if renal calculi existed before the administration of the drug, would the drug aggravate the condition? If the sulfonamide drugs do form renal calculi, are they permanent or are they dissolved after withdrawal of the drug? What drug of the sulfonamide group is most likely to form crystals in the urine and possibly exsemble in the kidney pelvis to form a foreign body visible by x-ray examination? Does the administration of iodized oil for bronchography have any therapeutic value, if so, what and for what?

Louis S Miles, M D, Summerville, S C calcula has come to my attention recently through the queries of patients

Louis S Miles, M.D., Summerville, S.C.

ANSWER-We have no evidence which would indicate that the sulfonamide drugs bear any relation to the formation of renal calculi, either by predisposing toward, or aggravating, existing calculi The so called crystals of the drug do not form calculi in the sense with which we usually associate that term, rather they form needles or crystals which in themselves may cause damage or which may "coalesce" to result in larger bodies Perhaps some consider these larger bodies as calculi, but the term would be a misnomer

The crystalline bodies which may form following the use of certain sulfonamides tend to disappear on withdrawal of the drug or following the forcing of fluids However, there are records of necropsies which have shown the masses too large for excretion by the ordinary channels. This explains why so much attention is given to daily examination of the urine when sulfonamide therapy is in progress

Information does not appear to be available as to the visibility

of these bodies by \\-ray\technic \\
The drug which would most likely form crystals in the urine is sulfapyridine

We have no evidence of any therapeutic value associated with the administration of iodized oil for bronchography

#### STERILITY DETECTORS-DIACK CONTROL, STERILOMETER AND ASEPTIC-THERMO INDICATOR

To the Editor -What products are considered reliable for determining the sterility of autoclayed materials?

Ansel Woodburn, M.D., Urbana, Ohio

ANSWER-A number of devices designed to indicate whether or not materials in autoclaves have been sterilized are on the market and in common use. Three of these in particular have been the subject of numerous investigations The Diack Control is a small sealed glass tube containing a reddish crystalline substance which is supposed to melt or fuse and change color at 121 C Obviously this reaction is largely or entirely-dependent on the single factor of temperature. The Sterilometer is a thermometer-like drawing on a square piece of cardboard, the bulb of the thermometer is said to turn black promptly on exposure to moist heat, and the stem to turn black after subjection to steam at 110 to 120 C for fifteen minutes, i c under conditions which insure destruction of all micro-organisms including the spore formers The \septic-Thermo Indicator, which is similar in principle, has a lavender arrow on a green dial pointing to the figure 250°, under the conditions of heat and moisture just described the arrow turns green so as to match its background

In 1933 T B Macath reported a study of Aseptic-Thermo Indicator (Mod Hosp 41:112 [Sept ] 1933) in which twentyfive of these devices were tested and were found to turn green only after exposure to 121 C for twenty minutes. The con-clusion drawn was that these indicators are satisfactory for testing sterilization with steam under pressure for all uses in bacteriologic laboratories and hospitals. A further investigation of these products was carried out under the auspices of the A M A Chemical Laboratory (The Journal, No. 24, 1934 p. 1621). Both the Sterilometer and the Thermo Indi-

cator were found to be efficient in determining sterilization by the autoclave. It was felt that neither type could cause a false sense of security, since whenever the reaction or change was irregular the change was on the side of safety and failure of matching

These opinions were not corroborated by subsequent investigations, however Quigley at Johns Hopkins Hospital after extensive studies concluded that the three devices are all unreliable, and their use in that institution was discontinued forthwith (personal communication) Underwood, whose book (A Textbook of Disinfection, Erie, Pa American Sterilizer Company, 1934) is based on investigations carried out in several leading medical centers, contended that none of these indi cators are fully trustworthy, although of the three types the Diack Control is the most uniform and generally satisfactory Underwood cites the work of Lcker, who found that Diack controls fuse at 122 C in two minutes, at 118 C in five to ten minutes and at 115 C in ten to fifteen minutes, that sterilometers change color with the least exposure to steam, the color becoming black with high temperatures, intermediate changes of color being variable and difficult to interpret correctly, and that Aseptic-Thermo indicato's show no color changes short of 124 C for fifteen minutes or 121 C for twenty minutes, this requirement being too high since it spoils rubber goods and dextrose solutions. Underwood criticized pasteboard indicators because they show some color changes at less than regulation temperatures, because the color fades somewhat in sunlight, because any hydrogen sulfide gas present may cause misleading color changes (in sterilometers), because the degree of color change requires interpretation and thus adds a factor of uncertainty, and because the cards cannot be extracted from the centers of packages without disturbing the covers and contaminating the contents

The most damaging evidence against these telltale indicators was submitted by C W Walter (Surgery 2:582 [Oct] 1937), who tested one thousand each of the three types A glass steam pressure chamber was used so that the products could be observed constantly under controlled conditions of temperature, pressure and moisture Walter found that there were Walter found that there were discrepancies between individual Diack controls, that they melt equally in dry and moist heat, and that most of the samples melt in one minute or less at the usual sterilizing temperatures, although in some tests melting was delayed longer than the time usually required for sterilization. Sterilometers were found to have an extremely poor end point of color change Most of the samples of this product showed complete blackening in less than six minutes, the average time being well below the advertised and published claims, some, however, showed delayed color changes which in practice might have resulted in unnecessary resterilization of the loads. Aseptic-Thermo indicators likewise had poor end points, the majority of samples changing color in less than twelve minutes, although in some change was unduly delayed. On the whole, the indicators were found to be the most consistent of the three types of devices Walter concluded that the expense of using telltale indicators to certify sterility is not justified because of disparity in individual performance and that the large personal equation in placing and interpreting them makes their use of doubtful value in general hospital practice.

Concerning these devices, Elhott C Cutler says editorially (Surg, Gynec & Obst 67:531 [Oct] 1938) "Various sterility detectors have been devised to assure the surgeon sterile supplies, but such detectors have proved inadequate"

Other methods have been utilized in the effort to insure sterilization by autoclaves. Maximum thermometers proved unpractical, since they cannot be placed conveniently inside representative packages of material and since they give no indication of how long the maximal temperature has been main-It has been suggested that a thermometer be placed in the discharge line of autoclaves in the belief that the temperature in the sterilizing chamber is certain to be as high as or higher than it is in the exhaust pipe. Timing in such a case should commence when the escaping steam has reached the standard sterilizing temperature (e g 121 C) This is a simple method which has much to recommend it satisfactory and reliable detector thus far devised is the recording potentiometer Thermocouples placed inside representative packages in the autoclave lead to an instrument which records continuously on a time chart the temperatures inside those packages By this means the desired temperature for the desired length of time inside all the bundles of a load can be virtually assured. Unfortunately these recording potentiometers are rather expensive. For the sterilizing departments of large hospitals an apparatus of proved worth is "Vicromay," as multiple recording potentiometer with as many as eight leads,

manufactured by Leeds and Northrop Company, Philadelphia. Walter (ibid. 67:526 [Oct.] 1938) has described a control mechanism to be used in connection with a potentiometer which automatically locks the door of the autoclave until standards of sterilization have been met. He claims that this apparatus can be used to eliminate "faulty sterilization due to failure of the sterilizing equipment and ignorance or negligence on the part of the attendant.

It must not be thought, however, that the problem of steam sterilization has been fully solved or that any fool proof method of carrying out the procedure has been discovered. The basic requirement for certain and satisfactory sterilization is that every part of the load, even the center of large, dense packages, should be subjected to moist heat of 121-126 C. for more than fifteen minutes or 115-121 C. for more than twenty minutes, conditions which are known to kill the most resistant microorganisms. The main difficulty lies in adequate expulsion of air from the autoclave chamber and avoidance of pockets of air inside glass jars, rubber gloves and bundles of fabric. Steam and air mix slowly, and diffusion of heat from steam to air requires time. Even after sufficient steam has entered the sterilizer to raise the pressure gage to 15 pounds, air pockets may for a long time show substandard degrees of temperature and moisture. Pressure gages are untrustworthy, therefore, for the purpose of timing steam sterilization, since it is moist heat, not pressure, which kills the bacteria. The best indicator, as has been pointed out, is a recording potentiometer with leads inside large, dense packages and other places where air is apt to pocket or where penetration of steam may be delayed, and the timing of the period of sterilization should not begin until the temperatures in those regions has reached the predetermined standard. Ideally there should be a companion device to indicate whether the heat in those regions is sufficiently moist, since dry heat of 121 C. or less may not kill all the organisms. Some idea of the degree of penetration of steam to the thermocouples can be obtained, however, by noting the lapse of time between closure of the discharge line of the autoclave and the registering of 121 C. by the potentiometer. Ordinarily this requires less than twenty-two minutes (Quigley). If this rise in temperature requires more than twenty-two minutes, it is presumptive evidence that pene-tration has been delayed unduly and that dangerous pocketing of air has occcurred which requires reexamination of the load and a fresh attempt to expel air from the sterilizer.

In conclusion it should be emphasized that pressure steam sterilization cannot be assured without intelligent and conscientious attention to the rules which govern preparation of packages, assemblying of loads and operation of the auto-clave. Sterility detectors should be viewed as stimulants and correctives, not as substitutes for careful work on the part of the attendant.

#### CHILBLAINS

To the Editor:—I have been given the following history concerning a woman aged 26 whom I have not seen and who lives in a cold climate: "When she was a little girl her shins were frozen and now in cold weather the shins become red, chap easily and hurt some. In very cold weather they may bleed a little." In your opinion is it possible for these symptoms to be due to "freezing of the shins" twenty years ago? M.D., California.

Answer .- This young woman probably has chilblains or erythema pernio, which usually affects the extremities of subjects with poor peripheral circulation. It appears as various shades with poor peripheral circulation. It appears as various snades of red and purple infiltrated patches and plaques, which are tender and itch or burn, and, characteristically, cold weather incites their presence. The parts are cool to the touch, and the redness disappears on pressure. The manifestations tend to disappear in the warmer seasons. The disease is most prevalent in damp, cold climates. It affects people with the so-called chilblain circulation, which is feeble and is sometimes denoted by cold hands and feet. by cold hands and feet.

In some cases chilblains and its background of impaired circulation becomes difficult to distinguish from livedo reticularis of the extremities, acrocyanosis and erythrocyanosis. A dusky reddish appearance may be imparted by permanently dilated superficial blood vessels, giving a reticulated and marbled pattern. Such changes in the vessels can be produced by syphilis, tuberculosis and toxemias; anomalies of the blood vessels and arteriosclerosis as well as infectious processes may be other causes. A tuberculous background not infrequently may be present in those with poor circulation and subject to frostbite.

Simple pernio needs to be differentiated from lupus pernio, which is a type of sarcoidosis. The latter is a manifestation of tuberculosis, a large number of observers believe. It manifests itself as erythematous symmetrical areas that are infiltrated and

thickened. They vary in color but are often a type of bluish red. They may have dilated blood vessels coursing over them. The diagnosis is readily made by microscopic examination. The tissue has a characteristic appearance. The treatment is with arsenical and gold administrations and exposure to roenteen rays. This type of lupus pernio is the so-called Besnier variety, probably due to tuberculosis.

A second variety of lupus pernio, the Hutchinson type, or chilblain lupus, is a manifestation of lupus erythematosus. consists of infiltrated erythematous patches and plaques which are aggravated in cold weather. The lesions occur on the face and extremities. Early they look like chilblains but later become more infiltrated and permanent and then look like lupus erythematosus. This type lacks the brownish nodules seen in the Besnier type when viewed through a glass pressed against the surface. Later the plaques are bluish or violaceous and scale, and finally they show atrophy, beginning first at the center. The histologic changes are those found in lupus erythematosus. The greatest difficulty in distinguishing these lesions from ordinary frostbite is present early before tunefaction occurs. Ordinarily, however, chilblains disappears in warm weather, but lupus pernio continues on, though the latter is worse in the winter.

The treatment of chilblains is by attention to the health in general. A tuberculous background, for example, may be present. The circulation should be improved with exercise and locally by friction and massage. Camphor liniment or bay rum may be applied. The extremities may be covered thoroughly with talcum and wrapped in cotton wool held in place by a bandage. The extremities should be kept warm continuously. The administration of arsenic before cold weather sets in is considered prophylactic. The cautious use of acetylcholine and related materials locally as by iontophoresis may be considered as of the newer remedies and not entirely evaluated at present.

#### ULTRAVIOLET BURNS OF THE EYE

To the Editor:-With the expansion of the heavy industries the number of cases of ultraviolet burns of the eye has greatly increased, curative substances be used locally in the eye in such cases?

Jonas S. Friedenwald, M.D., Baltimore.

ANSWER.-Inflammation of the eye caused by ultraviolet rays involves only the cornea, causing a characteristic photophthal-mia. Only the epithelial cells are involved, although in prolonged exposure the superficial substantia propria may be attacked. The corneal surface is stippled, slightly at first, but, as the latent photochemical reactions develop, the individual epithelial cells extrude their nuclei and finally desquamate. The entire process is characterized by extreme rapidity of cell death and of cell regeneration.

In the beginning of an attack of photophthalmia, iced applications are of some value. One of the more recent corneal anesthetics afford relief, but cocaine is contraindicated. An antiseptic agent to prevent infection of the eroded areas is of definite value. After twenty-four hours, heat hastens epithelial regeneration There are no known therapeutic agents of curative value; but the condition is self limited, provided there is no intercurrent infection of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of th infection of the corneal surface. (See Duke-Elder, W. S.: Textbook of Ophthalmology, St. Louis, C. V. Mosby Company 1:818.)

# PHLEBITIS AND CHILDBIRTH

To the Editor:—A patient who has a child nearly 4 years old now desires another. She tells me that she had a severe phlebitis following this birth and wishes to know the possibility of this occurring again. What should be advised?

A.D. Maine.

Answer.—Roughly speaking, an involvement of the veins of the lower extremities trebles the incidence of postoperative of the lower extremities trebles the incidence of postoperative thrombosis and embolism after abdominal hysterectomy (Barker, N. W.; Nygaard, K. K.; Walters, Waltman, and Priestle, J. T.: Proc. Staff Meet., Mayo Clin. 16:33 [Jan. 15] 1941). As a collective review of 179,072 childbirths gave an incidence of 1.3 per cent of thrombosis (Nurnberger, L.: Verhandt, deutsch. Gesellsch. f. Kreislaufforsch., p. 101, 1934), a previous thrombosis might approximately result by analogy in a 4 per cent incidence of thrombosis. The patient, then, is taling about the same chance as if she were undergoing an abdominal hysterectomy instead of a childbirth ber vias naturales. hysterectomy instead of a childbirth per vias naturales.

Cardiac disease, obesity, age above 40, prolonged labor, dehydration, anemia and infection are other predisposing factors. Elevation of the foot of the bed, snug bandaging of the limbs and cautious administration of heparin for seven to ten days after delivery will minimize the recurrence of phlebitis.

# The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 118, No. 15

COPYRIGHT, 1942, BY AMERICAN MEDICAL ASSOCIATION C H I C A G O , I L L I N O I S

APRIL 11, 1942

# SURGICAL ASPECTS OF ACUTE PANCREATITIS

WITH SPECIAL REFERENCE TO ITS FRE-QUENCY AS REVEALED BY THE SERUM AMYLASE TEST

ROBERT ELMAN, M.D. st. Louis

Acute pancreatitis is certainly a dramatic and interesting disease, yet it is often dismissed as unimportant by most physicians because they consider it as extremely rare and usually fatal. In direct contrast to this impression I expect to demonstrate that acute pancreatitis is far from rare and that in its common form it is rarely fatal but subsides spontaneously. The supposed rarity of acute pancreatitis is due to the fact that it is nearly always unrecognized because it mimics other well known acute conditions, both surgical and medical. In many instances the severe pain in the upper part of the abdomen, nausea and vomiting, local tenderness and muscle spasm all point to what is often called a surgical emergency. Indeed the indications for immediate laparotomy seem so clear that many patients with acute pancreatitis are operated on without any suspicion of the real cause of the trouble; the usual tentative diagnoses are perforated peptic ulcer, acute cholecystitis. intestinal strangulation or acute appendicitis. The diagnostic error is first apparent when the expected lesion is not found; however, if the surgeon is persistent and explores the abdomen, the true state of affairs will usually be revealed. Clear or brownish fluid may be seen coming from the lesser peritoneal cavity, and the pancreas, if it is palpated, will feel enlarged and firm, especially at the head of the gland. If the organ is exposed for inspection it will be found to be edematous, usually a little whiter than normal, and may exhibit tiny areas of fat necrosis over its surface. Occasionally, however, the color is darker, as if suffused with blood. Only in the severe type (called acute necrosis of the pancreas), which fortunately is rare, is there hemorrhagic fluid in the abdominal cavity as well as widespread This experience with acute pancreatitis is common with most surgeons. As expressed by Finney 1 at the Union Memorial Hospital in Baltimore, where 21 patients with acute pancreatitis were operated on, "At most we have diagnosed 2 correctly from a clinical standpoint and I am not sure about

Acute pancreatitis occurs also without raising the question of an acute surgical emergency, because it may simulate purely medical diseases commonly seen by internists. In such cases the presumptive diagnosis is usually acute coronary disease, biliary colic or occasionally tabetic crisis. The fact that the attack subsides promptly often serves to remove the need for any further diagnostic procedures and lulls the physician into a false sense of security that the first impression was correct. It is true that if biliary colic is suspected the diagnosis of cholecystitis is often confirmed when subsequent studies show that the gallbladder is diseased and cholecystectomy advised. Unfortunately, the diagnostic error in many such cases confronts the physician only after cholecystectomy has been performed and the patient returns with recurrent attacks of similar nature occurring within a few weeks or months after operation. Now the surgeon may take the blame for the recurrent attacks, especially if stones were present in the gallbladder, by confessing to the possibility of having missed a stone in the common duct. He may even cheerfully offer to operate again and look for the stone. If he does not find a stone, a T tube is usually inserted in the common duct and the diagnosis in the file of the patient's history becomes "postcholecystectomy syndrome,"

Up until a decade ago there was no reasonably certain way of making a clinical diagnosis of acute pancreatitis, and this is, of course, the reason it was seldom recognized and therefore considered rare. Indeed, our sole knowledge of acute disease of the pancreas was furnished by pathologists and to a lesser extent by surgeons. The best known type of acute pancreatitis, acute necrosis of the pancreas or acute hemorrhagic pancreatitis was summarized by Reginald Fitz 2 on the basis of autopsy findings in his classic papers published in 1889; he described and classified the various lesions which are included under these terms. Surgeons also encountered this lesion and soon recognized its severity and the high mortality that followed operation. However, the usually fatal type of disease which Fitz described was extremely rare and for this reason aroused little clinical interest. I shall have relatively little to say, therefore, of acute pancreatic necrosis, but more of the subsiding or transient type of acute (nonhemorrhagic) pancreatitis which is common and rarely fatal.

In 1927 I became interested in the pancreas and largely for diagnostic reasons studied in the serum the pancreatic ferment amylase by a viscosimetric method. My first patient who presented a high serum amylase (thirty times normal) was the mother of a colleague, who had an attack of severe abdominal pain and circulatory collapse, which ended fatally within twenty-four hours; at autopsy there was an intense

Max Ballin Lecture, delivered at the Institute of Art, Detroit, Nov. 26, 1941.
From the Department of Surgery, Washington University School of Medicine, and Barnes and St. Louis City hospitals, 1. Francey, G. G., in discussion of paper by Morton, J. J., Jr., and Wilger, S. W.: Ann. Surg. 111: 802 (May) 1940.

^{2.} Fitz, R. H.: Acute Pancreatitis, Boston & M. S. J. 120:81f, 205 and 229, 1889.

Other patients were acute hemorrhagic pancreatitis encountered with a high serum amylase, three of whom were later shown to harbor pancieatic cysts, although the values were not as high 3 Soon afterward I operated on a patient with supposed biliary colic whose serum amylase was extremely high (twenty times normal). At operation I found gross evidence of acute pancieatitis, biopsy of the pancreas showed interstitial changes of acute inflammation. On consulting the literature I was able to find, without much difficulty, nearly 40 cases of acute nonhemorrhagic pancreatitis, nearly all encountered more or less accidentally by surgeons while operating on patients with acute disease of the abdomen, supposedly due to other lesions 4 The first reference I could find of acute pancieatitis without necrosis was to a patient operated on by Dr W S Halsted in 1890 The preoperative diagnosis was intestinal obstruction; nothing was done at operation and the patient In 1922 Zoepffel,6 a German surgeon, 1ecovered operated on 4 patients because of acute manifestations within the abdomen and found changes in the pancreas which were quite unexpected Zoepffel called the lesion acute edematous pancieatitis because he observed the extreme edema surrounding the gland All 4 of his patients recovered, although nothing specially was done at operation to the pancreas except to take a specimen for biopsi

Armed with a simplified method of determining annelase and commeed of the frequency of nonhemorthagic pancreatitis, I became suspicious of all patients entering the hospital for emergency treatment of acute pain in the upper part of the abdomen, blood was examined for its content of amylase in a series of such Many of them showed high amylase values, at first I operated on these patients and found the changes in the pancreas already noted It soon became apparent, however, that the attacks, dramatic as they seemed on entrance, rapidly subsided, and often in twelve hours the patient seemed entirely well in con-

trast to the die situation the night before

During the past ten years many more similar observations were made at the Barnes Hospital and St Louis City Hospital, details of which may be found in several publications during this time 8. With the use of serum amylase determinations at Barnes Hospital, the number of diagnoses of acute pancreatitis has increased by several hundred per cent At the St Louis City Hospital 65 cases were recognized during the past five years, whereas before the use of the amylase test such a diagnosis appeared only a few times a year and then nearly always it was based on observations made at autopsy Indeed, the incidence of acute pancreatitis was about half of that or perforated peptic ulcer and one tenth of that of acute appendicitis at the latter hospital observations have been made in other clinics situation is not surprising when one realizes that the

clinical picture of acute pancreatitis mimics so closely other acute conditions of the abdomen that often the diagnosis cannot be made without the aid of the blood amylase test The following is a typical recent experience.

A salesman aged 31, unmarried, was admitted because of an emergency with the history that thirty hours before his entrance he was seized with sudden, constant epigastric pain with no radiation and that he had vomited on several occasions after onset of the pain Previous to this seizure he had been relatively well, except that for the past five months he had suffered from similar but milder episodes of pain lasting several days, with complete freedom of symptoms between attacks He received some relief by taking sodium bicarbonate and occasionally by consuming food. Several physicians who examined him stated that he had a duodenal ulcer. On admis sion the patient was severely prostrated but was not in shock and complained bitterly of pain in the midepigastrium Although a roentgenographic examination did not show air under the diaphragm, the local signs (severe local tenderness and muscle spasm) were so characteristic of peritoneal irritation that it seemed certain that he had either an acute cholecystic obstruc tion or a perforated peptic ulcer Because of the possibility of pancreatitis the amylase in the blood was determined Nevertheless, the patient was prepared for operation, however, promptly after the administration of fluid there was almost a complete relief of pain Moreover, the local conditions subsided so rapidly that operation was not carried out. This decision was made easy by the fact that the blood amylase examination was reported as 1,500, the normal being about 100 Several days later the blood amylase had returned to a normal value In view of his past history a complete gastrointestinal series 1175 No evidence of ulceration or other abnormality was done The cholecystogram was of great interest and showed merely a faintly but very definitely visualized gallbladder. The patient was discharged from the hospital and on a dietary regimen has thus far remained well

This experience is an instructive one because it emphasizes again the fact that it is easy to overlook the possibility of acute pancieatitis and illustrates, therefore, the ease with which such a diagnosis may be missed and an unnecessary operation carried out. It may be missed because the blood amylase test is really the only certain method of diagnosis May I also emphasize that it is of value only during the acute manifestations If we had waited a day or two before examining this patient's blood the value for the annlase would have been normal and we never would have known that he actually was suftering from pancreatitis unless, of course, we had operated and found the lesion The curve of amylase !; usually a characteristic one, high at the beginning of the attack but falling very rapidly to normal, as has been illustrated in many publications both from our clinic Nevertheless, the question is often and elsewhere raised and I must emphasize again that in the typical case serum amylase measurements are of no value what ever unless carried out shortly after the patient's acult This is particularly true, of course when the attack is relatively mild in its severity, because symptoms begin in these instances the elevation of the serum amylase, though striking and pronounced, may be of only tuelve to twenty-four hours' duration

Is there actually any sound clinical basis for a hidside diagnosis of acute pancreatitis? I am afraid that I must answer this question in the negative. In spite of my own observations of a good many cases over many years. I believe that such a clinical diagnosis is Indeed, one must consider such a diagnosis in every patient with acute pain in the upper part of the abdomen, even though he seems to be pre senting the typical clinical picture of the following coll

³ Elman, Robert

Steper Biol & Med
and Graham, F 4
nosis of Pancreatic Disease, A Clinical Study, Arch Surg 19:943
(Dec pt 1) 19:29
ease of the Pancreas
(Nov. pt 1) 1931
4 Elman Robert
Observations, Arch Int Med 48:828
(Nov. pt 1) 1931
5 Halsted W S
Retrojection of Bile as a Cause of Acute Hemor
Flatsic Pancreatitis

Bull Johns Hopkins Hosp 12:179, 1901
7 Somogyi W J Biol Chem 125:399
Schopt America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oct.) 1940
8 Elman Robert
Control America 20:1247 (Oc

ditions: perforation of a peptic ulcer; acute intestinal obstruction; acute cholecystic obstruction or acute cholecystitis; coronary disease; biliary colic; acute appendicitis; tabetic crisis. Indeed, I may say that any patient with severe, pronounced abdominal pain, particularly when it is located in the epigastrium, should be suspected of having acute pancreatitis. If the blood is examined promptly in such cases, many cases of acute pancreatitis will be detected; certainly the test will enable one either to make such a diagnosis or to exclude it. Obviously, the last result is most frequent, and one is thus enabled to exclude the diagnosis of acute pancreatitis and consider other possibilities. On the other hand, a positive test will lead to a diagnosis of acute pancreatitis and thus exclude other lesions for which an immediate abdominal operation might have been carried out; this is especially important because a diagnosis of acute pancreatitis does not call for immediate operation.

#### TREATMENT OF ACUTE PANCREATITIS

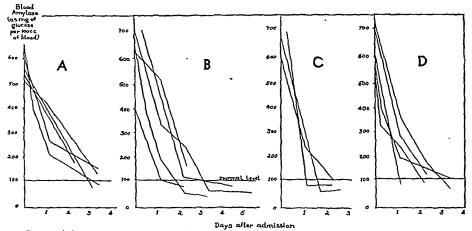
Once a diagnosis of acute pancreatitis is made at the time of the acute attack, the surgeon must then decide whether the patient is suffering from acute non-

hemorrhagic pancreatitis or whether the lesion is a true necrosis of the pancreas. Since operation is not urgent, the patient can safely be observed. If the patient has acute nonhemorrhagic pancreatitis, the attack will subside promptly and further examinations can be carried out later. On the 300 other hand, if the patient is suffering from a true 200 necrosis of the pancreas, the attack will not subside and prolonged nonoperative therapy may end in a fatality. It is in the latter group of patients, fortunately very rare, on whom I believe operation should

be carried out at an appropriate time, because without operation the mortality approaches 100 per cent. is difficult to state what this appropriate time will be, but certainly sufficient time must be allowed for adequate preparation of the patient, perhaps for at least several days. Only rarely is it possible for an acute necrotic process in the center of the abdominal cavity to be relieved spontaneously, usually by sloughing of the necrotic organ or drainage of an abscess into the lumen of the intestine or to the exterior. At operation the lesion must be attacked at its origin; the surgeon opens the lesser peritoneal sac and allows escape of infected and necrotic material to the outside by drainage of this cavity. Drainage of secondary abscesses, which usually develop by extension from the lesser peritoneal cavities, is usually insufficient. Cholecystostomy is also advisable in these patients in order to divert the flow of bile which seems to be a factor in the development of pancreatitis by reflux into the pancreatic duct. Many years ago I operated on several such patients who survived and are living today. I must confess that during the past iew years, influenced largely by the popularity of the so-called conservative treatment of all types of pancreatitis, we have refrained from operating on these patients. As a result, I have seen 6 such patients during the past

five years at the autopsy table. Some of them, I am sure, might have been saved if they had been operated on, since they were in the hospital for several weeks before the fatal outcome. It is well to emphasize also that in patients with hemorrhagic as well as in those with non-hemorrhagic pancreatitis the blood amylase tends to fall after the initial rise. The fall in the former case, however, is not due to a subsidence of the process of inflammation but rather to a destruction of the gland which manufactures amylase. A fall in the level of blood amylase, therefore, must not be taken as an indication that the process is subsiding. This decision must be based on the clinical manifestations.

What is done when the attack of acute nonhemorrhagic pancreatitis has subsided and the patient after the course of a day or two or more feels perfectly well? It has been our policy to study these patients at leisure, usually by carrying out a complete gastro-intestinal examination as well as a cholecystogram. If, as the result of such examinations, an operation is indicated (usually cholecystectomy), it is carried out. In many of these cases removal of a diseased gallbladder and stones will result in a complete relief of further



Characteristic serum anylase curves in four groups of patients with acute interstitial pancreatitis: ⁷ A, with normal gallbladder; B, with pathologic gallbladder; C, following cholecystectomy; D, with condition of gallbladder unknown.

attacks. In certain cases cholecystectomy is followed by a recurrence of the attacks of pancreatitis. experience has stimulated attempts on the part of surgeons to do something at the time of operation which might prevent these recurrences. Indeed, this problem also arises when a patient who has had a previous cholecystectomy returns with recurrent attacks of pain which for the first time are shown to be due to acute pancrea-The same problem is presented by the patient with repeated attacks of acute pancreatitis who shows no evidence of a surgical lesion for which an abdominal operation is indicated. The problem, though difficult, is usually hopeful because there seems to be a natural tendency for the attacks to disappear eventually. I wish to make several suggestions which I have found are useful. In the first place, glyceryl trinitrate,  $\frac{1}{100}$  grain (0.0006 Gm.), placed under the tongue and repeated in a few minutes shortly after the onset of the attack will often result in dramatic abortion of the attack. This remedy, however, must be used promptly; if the attack has been present for a number of hours the drug usually fails. For this reason, the patient is asked to carry a number of these tablets to be taken as soon as the attack begins. The mere possession of these tablets, once they have effected relief of the pain, often gives the individual a great deal of confidence, that the fear of attacks may thereby be overcome has perhaps in itself some therapeutic value Other drugs have been recommended for the relief of pain during the attacks However, most of them are apt to be disappointing is true of morphine as well as epinephrine and ephedrine

The patient who has had several attacks of acute pancieatitis should also be placed on a regimen which has as its purpose the maintenance of a more or less constant flow of bile and the avoidance of any storage of hile for long periods of time in the gallbladder. This may be achieved by a regimen of small frequent feedmgs and the avoidance of any large meals with necessaid long periods afterward when no food is ingested In this way many patients may enjoy long remissions

In the really refractory cases of acute pancreatitis, particularly those in which a previous cholecystectomy has been performed, the problem is more difficult Many of these patients have had various procedures performed, such as a T tube dramage of the common duct, in an attempt to prevent such attacks. Dilation of the sphincter of Oddi has been advised and performed Cutting of the sphincter has also been carried out These last two procedures are based on the theory that pancreatitis is due to a sphincter spasm which converts the biliary and pancreatic ducts into a common channel and that bile acts as an unitant when it enters the pancieas If this is indeed true, a more obvious solution would be the transplantation of the common duct to another site in the duodenum. I have never heard of this procedure being done and have never done it myself Perhaps it should be done in refractory cases of acute pancreatitis which do not respond to other

There are other types of pancreatitis which have surgical interest and can be detected and the course of the disease followed by measuring the blood amylase These conditions are much less common than the clearcut instances of acute nonhemorrhagic pancieatitis thus far discussed For example, patients have been studied with evidence of subacute pancreatitis which follow an atypical course In other patients a peptic ulcer may slowly perforate into the pancreas and produce an inflammatory reaction reflected in elevations of the blood amylase Such cases require further study, I have seen very few of them There is a suggestion which I should like to make, however, in regard to the early diagnosis of carcinoma of the head of the pancreas observed several jaundiced patients with increased blood amylase values who subsequently were shown to have carcinoma, I suggest the more frequent use of this test early in the course of unexplained jaundice tumor obstructs the pancreatic duct, the rise in blood amylase will be prompt, however, with complete obstruction a return to normal occurs within a few Indeed, in nearly all late cases of carcinoma of the head of the pancreas that I have studied the blood amy lase was normal or below normal

#### SUMMARY

Physicians are urged always to consider the pancreas as a cause of severe pain in the upper part of the abdomen The frequency of acute pancreatitis is not generally realized because this disease so mimics other acute conditions that a clinical diagnosis can seldom he made without the serum amylase test, which reveals a high value soon after the onset of the attack The clinical manifestations of acute pancreatitis are usually those of an acute surgical condition within the

abdomen such as perforated peptic ulcer, acute intestinal obstruction, acute cholecy stitis and acute appendicitis, so that often emergency operations are needlessly per-In other instances acute pancreatitis imquerades as a coronary attack or biliary colic and is a cause of the "postcholecy stectomy" syndrome Treatment is conservative at the outset of the attack, if the manifestations subside promptly, as they usually do subsequent study may reveal the need for operation usually cholecystectomy, if the manifestations do not subside, necrosis of the pancreas (a rate event) is suspected and operation planned for dramage of the lesser peritoneal cavity. The treatment and prevention of the individual attacks of acute nonhemorrhagic pan creatitis thus far is purely medical

4580 Scott Avenue

#### THE USE OF SULFAGUANIDINE INTHE TRFATMENT OF DYSENTERY CARRIERS

LOWELL A RANTZ, MD AND WILLIAM M M KIRBY, MD SAN FRANCISCO

A chemical for the treatment of infections, such as bacilliary dysentery, which are limited to the gastro intestinal tract should have certain properties. It must dissolve in the bowel content in a concentration adequate to inhibit the multiplication of, or to kill, pathogenic organisms and must be harmless to the human or am mal host No intestinal antiseptic has, in the past fulfilled these requirements. The use of the sulfonamide drugs has become firmly established in the treat ment of various infections but the rapid and complete absorption of these chemicals from the gastrointestinal tract has made them valueless in the therapy of local The report by Marshall Bratton enteric infections White and Litchfield,1 describing the properties of sulfaguanidine, the analogue of sulfathiazole and sulfa pyridine, was received, therefore, with great interest This drug was found to be soluble in water in amounts sufficient to cause adequate bacteriostasis of intestinal pathogens but was poorly absorbed from the howel so that a high concentration in the intestinal content and a low concentration in the blood and tissues was readily attained Animal experiments suggested that the number of coliform bacteria in the feces of mice? dogs and monkeys2 could be reduced by the adminitration of sulfaguanidine

In vitro exeriments 3 have demonstrated that this chemical strikingly inhibits the growth of strains of Flexner, Sonne and Shiga varieties of dysentery breille and also of Salmonella cholerae surs and Salmonella para A but is ineffective against other organisms in the Salmonella group

It has been suggested that the apparent failure of absorption of sulfaguanidine might be due to a removal of the drug from the blood stream by the liver and a return of the material to the gastrointestinal treet

From the Department of Medicine Stanford University Set of Stanford 

in the bile. Hubbard and his associates 4 have recently studied this possibility and have shown that the concentration of the drug in the bile was sufficiently low to exclude the possibility of any important degree of reexcretion into the intestine.

This experimental evidence logically suggested a trial of sulfaguanidine in acute bacillary dysentery. A group of 17 children were treated by Marshall, Bratton, Edwards and Walker,5 who felt that the results obtained were satisfactory, especially if chemotherapy was begun before the third day of the disease. The drug was found to be very poorly absorbed from the gastro-intestinal tract, as had been anticipated from the previous animal experiments. The use of sulfaguanidine in the treatment of bacillary dysentery has also been described by Lyon,6 who studied two groups of 23 patients, one of which was treated with this drug. Bacteriologic diagnosis was made in only one third of the cases. Clinical improvement occurred in 18 of the treated cases within forty-eight hours, and recovery was well established in a few days. Fever continued, in the control group, for two weeks in association with bloody purulent diarrhea and loss of weight and strength.

The course of chronic bacillary dysentery in 2 babies was not altered by the exhibition of sulfaguanidine,5 and no other trials of the use of this agent in the treatment of chronic cases of this disease, or of healthy carriers of dysentery bacilli, appear to have been reported. The presence of typhoid bacilli in the gallbladders of carriers of this organism may cause local chemotherapy to be ineffective in the control of this condition. Eradication of these bacteria from the sto: ls of 1 patient following the administration of sulfaguanidine has been described.7

In the treatment of acute bacillary dysentery, sulfaguanidine has usually been administered in an initial oral dose of 0.1 Gm. per kilogram of body weight, to be followed by 0.3 Gm. per kilogram in divided doses every twenty-four hours until clinical improvement has occurred. The dose is then halved and continued for at least three days.

The toxic manifestations that may be observed in association with the use of sulfaguanidine are similar to those encountered with the other sulfonamides. Fever, skin rash, conjunctivitis, anemia and crystalluria have been described but have not been severe in any case.8 No signs of toxicity or postmortem evidence of tissue damage were observed in monkeys treated with large doses for one month.5

#### PRESENT STUDY

Dysentery bacilli were isolated from the stools of 10 employees of a San Francisco hospital during a recent survey. These persons and one other man were selected for treatment with sulfaguanidine in an attempt to eliminate dysentery bacilli from their stools.

The accompanying table summarizes the data pertinent to the study and treatment of these patients. All of the isolated organisms were nonmotile and fermented mannite and xylose. Only one failed to attack dulcitol. Agglutination tests were performed and the

results are shown in the table. Most of the strains were agglutinated by antiserums for Shigella alkalescens and the Flexner X and V varieties.

These are, in general, the characteristics of Sh. alkalescens.9 The pathogenicity of this variety of dysentery bacillus in man has only recently been established in spite of its close antigenic and cultural relationship to the usual Flexner types. The failure of many laboratories to perform adequate differential tests accounts, in part, for the slow recognition of the bacillus. In this clinic Sh. alkalescens has been isolated from examples of acute and chronic dysentery and is more frequently recovered than any other variety of dysentery bacillus.

Observations and Treatment in Eleven Cases

						Stool Cultures			
	Organism Type and	Reactions	Total Dose	Blood Level Mg.	Num- ber Posi- tive Before	Day of Treat- ment First	Num- ber of Days	Num- ber	
Pa- tien	Highest	Chemo- therapy	in Gm.	per 100 Cc.	Treat- ment	Nega- tive	Nega- tive	Nega- tive	
1	V-1/640 Z-1/80 Alk0	Hendache Nausea Cramps	16	0.2	1	3	110	11	
2	X-1/2,560 V-1/610 Alk1/480	None	60	2.8	5	5	60	8	
3	X-1/640 V-1/163 Alk1/960	Nausen Vomiting	48	2.5	3	4	70	5	
4	X-1/1,280 V-1/610 Alk1/480	None	75	0.5	3	4	100	11	
5	X-1/640 V-1/640 Alk1/960	Headache	48	1.5	2.	3	95	8	
6	V-1/1,280 Alk,-1/960	Headache	72	2.9	2	5	40	5	
7	X-1/1 280 V-1/610 Alk1/960	Headache	48	1,1	2	4	90	8	
8	X-1/160 Alk1/960	None	48	1.5	5	4	30	6	
9	X-1/5.120 V-1/1,280 Alk1/240	None	48	1.6	4	4	30	6	
10	X-1/169 V-1/80 W-1/80	None	48 60 117	3.2 2.6	2 	Never 4 4	0 0 0	0 0 0	
11	X-1/640 V-1/160 Alk,-1/60	None	72 84 96	5 0 2.1 5.0	15 	Never 4 4	0 0	0 0 0	

About half the patients had had mild gastrointestinal symptoms before treatment. These were rather nonspecific in character, chiefly abdominal cramps and diarrhea. Patient 5 had had several loose bowel movements daily for more than a year. A course of atabrine was administered for the purpose of eliminating an infection with Giardia lamblia, but he continued to have four or five stools a day, from which many dysentery bacilli could be isolated before treatment was begun. Each patient received 12 Gm, of sulfaguanidine an daily for from two to six days. The total amounts varied from 16 to 84 Gm., the average being about 50 Gm. The drug was discontinued voluntarily on the second day, because of nausea and vomiting, by 1 patient. All the others completed the course prescribed.

Stool specimens were collected in each case on every second or third day during the first ten days of observation after treatment was begun and then at

^{4.} Hubbard, R. S.; Butsch, W. L., and Aaron, A. H.; Excretion of Sulfanilylguanidine in Material Drained from the Human Biliary Tract, Proc. Soc. Exper. Biol. & Med. 47: 132 (May) 1941.

5. Marshall, E. K., Jr.; Bratton, A. C.; Edwards, Lydia B., and Walker, Ethel: Sulfanilylguanidine in the Treatment of Acute Bacillary Dysentery in Children, Bull. Johns Hopkins Hosp. 68: 94 (Jan.) 1941.

6. Lyon, G. M.; Chemotherapy in Acute Bacillary Dysentery, West Virginia M. J. 37: 54 (Feb.) 1941.

7. Levi, J. E., and Willen, Abner: The Typhoid Carrier State Treated with Sulfaguanidine, J. A. M. A. 116: 2258 (May 17) 1941.

8. Marshall, Bratton, Edwards and Walker.³ Lyon.⁵

^{9.} Felsen, Joseph, and Wolarsky, William: Bacillary Dysentery Due to Bacillus Alkalescens, New York State J. Med. 40: 1303 (Sept. 1) 1940. Branston, Mary, and Eldering, Grace: Cultures of the Dysentery Group Isolated in Western Michigan, J. Infect. Dis. 68: 113 (March-April) 1021

⁹a. Supplied by the Lederle Laboratories, Pearl River, N. Y.

approximately weekly intervals. Sulfaguanidine was demonstrated in the stools by qualitative tests for four to five days after the cessation of treatment. Cultures were made of every stool. The amount of sulfaguanidine in the blood of each patient was determined on the third or fourth day of treatment by the method of Bratton and Marshall.10

#### RESULTS

Dysentery bacilli disappeared from the stools of 9 of the treated patients during the period of sulfaguanidine administration. Repeated culture of the stools of these persons over an interval of from one to three months has failed to disclose pathogenic organisms on any occasion. In the other 2 cases, treatment was undertaken on three occasions, with progressively larger amounts being given. After the second and third courses of chemotherapy the dysentery bacilli disappeared from the stools of these patients, only to return shortly after the withdrawal of the drug. Patient 5 had symptoms which appeared to be due to chronic infection with dysentery bacilli. Since treatment, his diarrhea has disappeared, his appetite has improved and he has gained weight.

Certain of the treated patients have stated that symptoms referable to the gastrointestinal tract were less severe following treatment with sulfaguanidine. nature of these complaints is such that evaluation of this

observation is impossible.

Few toxic manifestations were noted. Nausea and vomiting occurred in case 1 after 16 Gm. and in case 3 after 48 Gm, of the drug had been administered, but these symptoms were neither severe nor prolonged. Five subjects had slight to moderately severe headaches, lasting twenty-four to forty-eight hours. No drug fevers, rashes, hematuria, oliguria or anemias developed. In general, the subjects were all able to remain ambulatory and to work throughout the treat-

The amount of sulfaguanidine in the blood was consistently small. The variation was from 0.5 to 5 mg., with an average of 2.22 mg. per hundred cubic centimeters of blood. Sulfaguanidine could be detected in the stools for about five days after treatment was discontinued.

#### COMMENT

Little is known of the incidence of healthy dysentery carriers among civil groups. It is becoming apparent, however, that bacillary dysentery is an important problem in the United States. Felsen 11 has pointed out that this disease was reported sixteen times as frequently in 1937 as in 1933. Inexpensive transportation, leading to a shifting population, and congestion in urban areas may be partially responsible for this increase.

It is often difficult to distinguish clinically between healthy carriers and patients with mild chronic bacilliary dysentery, since functional complaints of the former may be identical with the symptoms of organic disease of the latter. Felsen,12 in a follow-up after the Jersey City epidemic of acute bacillary dysentery in 1934, found that 10 per cent of the patients had persistent complaints varying from mild diarrhea and abdominal cramps to severe forms of regional ileitis and ulcerative colitis. About half of the patients treated with sulfa-

guanidine during the present study had had mild symptoms referable to the gastrointestinal tract, and some felt that they were benefited by treatment. All but I should probably be regarded as healthy carriers.

In general, the results of treatment of this group of dysentery carriers with sulfaguanidine have been very encouraging. The stool cultures of 9 of the 11 patients became negative during treatment and have remained so for periods varying from thirty to ninety days. The reason for the failure in the other 2 is not clear. It may be significant that the organisms isolated were serologically different from most of the other strains.

The daily amount of sulfaguanidine administered was smaller and the duration of treatment was shorter than that suggested for acute dysentery, but effective concentrations in the intestine were attained in most instances. A few toxic reactions occurred, but the patients were all able to remain at work while taking the drug.

Dysentery bacilli may not always be so easily eradicated from the stools by the action of chemotherapeutic The organisms isolated from the patients included in this study were closely related biochemically and serologically and were somewhat different from the typical Flexner varieties. They may have been unusually sensitive to the action of sulfaguanidine.

Insufficient clinical and experimental data are available to determine accurately the value of sulfaguanidine in acute bacillary dysentery. Administration of the drug early in the disease appears to have a favorable influence on the course of the infection. That this chemical exerts a profound bactericidal effect on some bacilli of the dysentery group is indicated by the rapid and permanent elimination of these organisms from stools of the carriers described in this study. A similar action should occur to some degree in cases of acute infection with resulting cure or amelioration of the disease. The observations reported in this paper, therefore, provide additional evidence that sulfaguanidine is an effective agent to be used in the treatment of acute and chronic bacillary dysentery.

The healthy carrier of dysentery bacilli is probably the source of most cases of sporadic infection.12 In closed groups, such as hospitals, prisons and army camps, such persons at work in the kitchen are frequently responsible for the outbreak of serious epidemics. One of the most difficult problems arising in the control of such epidemics has been the absence of any satisfactory method for rendering the discovered carriers noninfectious. If the satisfactory results obtained in the treatment of carriers reported in this study are extended and confirmed, sulfaguanidine will become a valuable adjunct to the control of the spread of bacillary dysentery both in civil life and in

the armed forces.

#### SUMMARY AND CONCLUSIONS

- 1. Eleven patients, from whose stools dysentery bacilli have been repeatedly isolated, have been treated with sulfaguanidine. About half had mild gastrointestinal complaints, but, with one exception, they are all regarded as healthy carriers.
- 2. In 9 of the 11 cases, dysentery bacilli disappeared from the stools during treatment and have not returned over periods varying from thirty to ninety days. This result was not obtained in 2 instances after three courses of treatment.

^{10.} Bratton, A. C., and Marshall, E. K., Jr.: A New Coupling Component for Sulfanilamide Determination, J. Biol. Chem. 128: 537 (May) 1939.

11. Felsen, Joseph: The Problem of Bacillary Dysentery, Am. J. Trop. Med. 19: 333 (July) 1939.

12. Felsen, Joseph, and Gorenberg, Harold: Chronic Dysentery, Distal 12. Felsen, Joseph, and Gorenberg, Harold: Chronic Dysentery, Distal Reitis and Ulcerative Colitis, Am. J. M. Sc. 192: 553 (Oct.) 1936.

^{13.} Zinsser, Hans, and Bayne-Jones, Stanhope: Textlerk of Butter, ology, New York, D. Appleton-Century Company, 1939, p. 545.

3. All patients remained ambulatory and continued work while being treated. Few toxic manifestations

4. These favorable results suggest that further clinical trials are indicated both in healthy carriers and in

cases of chronic bacillary dysentery.

5. This drug, which is adapted for use in ambulatory patients, may become a valuable adjunct to the control of the spread of bacillary dysentery, both in civil life and among the armed forces.

# CONTROL OF CROSS INFECTIONS OF THE RESPIRATORY TRACT

IN A NURSERY FOR YOUNG INFANTS: A PRE-LIMINARY REPORT

L. W. SAUER, M.D.

L. D. MINSK, M.D. AND

I. ROSENSTERN, M.D.

EVANSTON, ILL.

The adoption of the Dick aseptic nursery technic 1 at The Cradle in 1929 practically eliminated hand borne cross infections, such as enteritis and impetigo. Figure 1 illustrates the effect of this technic on the number of deaths due to enteritis contracted after admission. During the six years prior to the introduction of this aseptic technic (1923 to 1928) a total of 942 infants was There were 55 deaths, 53 due to enteritis. In 40 of the fatal cases infection was contracted after admission. During the twelve years since the introduction of the aseptic technic 3.132 infants have been admitted. There were 26 deaths, 6 due to enteritis. In no case was infection contracted after admission. The total mortality rate before the introduction of the aseptic technic was 5.8 per cent and after its introduction 0.8 per cent.

There remained, however, the problem of the respiratory cross infections. Nine infants died from infections

1923 25 27 29 31 33 35 37 39 AI Application of aseptic nursery technic 40 deaths No deaths

Fig. 1.—Cases of fatal enteritis contracted after admission before and after introduction of a-ceptic nursery technic.

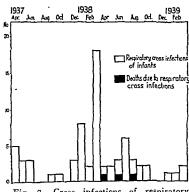
of the respiratory tract after the introduction of the aseptic technic. Seven of them contracted the infection after admission. Figure 2 demonstrates the incidence of cross infection of the respiratory tract in infants during the last two years in the old building. Although there were seasonal differences, some infections were present at all times of the vear. Thus in 1938 there occurred a midsummer infection of the respiratory tract involving all but 1 infant of a twelve crib

unit and six attendants.2 The epidemic was introduced by an infant admitted with a cold. In 1 of the cases of secondary infection fatal bronchopneumonia developed.

A new building was erected in 1939 to investigate newer principles in the control of air borne infections: air conditioning, germicidal lights and mechanical barriers. This building was divided into three units of twelve cubicles each.

The cubicles in the control unit are separated from one another by complete partitions but are open at the

front. Each cubicle is air conditioned with 100 per cent 6 outside air. The air, at a temperature of 75 F. and a relative humidity of 40 per cent, enters near the ceiling and leaves near the floor. There is a complete change of air every six minutes. Thermostats are placed to throughout the unit.



maintain a con-stant temperature old building: 68 cases, 3 deaths.

The only principle applied in this unit to prevent air borne infections is that of air conditioning

The light unit (fig. 3) was designed by William F. Wells,3 who had made important contributions on light as a bactericidal agent. This unit is air conditioned like the control unit; in addition, germicidal lights an are placed above the open end of each cubicle so that a vertical curtain of light is thrown across each entrance. Six of these cubicles are separated by partitions from ceiling to floor; in the other six cubicles light curtains replace alternate solid partitions. Ventilation tests of the bactericidal tightness of the light curtains showed that about 99 per cent of the test organisms were killed as they passed through the light barrier. The light curtains are designed so that only a harmless fraction of the rays reaches the corner of the cubicle where the head of the infant is exposed. The nurses' eyes are protected by head shields and goggles. The spectrum band of this light differs from the customary ultraviolet in that approximately 90 per cent of its rays are of 2,537 angstrom units. Favorable results with the application of germicidal lights in infants' and children's wards and schoolrooms have been reported by McKhann, Steeger and Long; del Mundo and McKhann; Wells, Stokes, Wells and Wilder; Barenberg, Greene and Greenspan, and Greene, Barenberg and Greenberg.4

The barrier unit (fig. 4) was designed by James A. Reyniers, who had made important contributions to the

^{1.} Dick, G. F.; Dick, Gladys H., and Williams, J. L.: Etiology of Epidemic of Enteritis Associated with Mastoidiis in Infants, Am. J. Dis. Child. 35:955 (June) 1928. Asspic Nursery Technic as Used at The Cradle Society. 1941.

2. Sauer, L. W., and McDenald, J. J.: A Midsummer Respiratory Infection in an Asspically Conducted Adoption Nursery, J. Pediat. 14: 304 (March) 1939.

^{3.} Wells, W. F., and Wells, Mildred W.: Air-Borne Infection, J. A. M. A. 107: 1698 (Nov. 21) 1936; Air-Borne Infection: Sanitary Control, ibid. 107: 1805 (Nov. 28), 1936; Measurements of Sanitary Ventilation, Am. J. Pub. Itealth 28: 343 (March) 1938. Wells, W. F.; Wells, Mildred W., and Mudd, Stuart: Infection of Air: Bacteriologic and Epidemiologic Factors, ibid. 20: 863 (Aug.) 1939.

Ja. The germicidal lamps were supplied by the General Electric Company.

³a. The germicidal lamps were supplied by the General Electric Company.

4. McKhann, C. F.; Steeger, Adelbert, and Long, A. P.: Hospital Infections, Am. J. Dis. Child. 55:579 (March) 1938. del Mundo, Fê, and McKhann, C. F.: Effect of Ultraviolet Irradiation of Air on Incidence of Infections in an Infants' Hospital, ibid. 61:213 (Feb.) 1941. Wells, W. F.; Stoke, Joseph; Wells, Mildred W., and Wilder, T. S.: Experiments in the Environmental Control of Epidenic Respiratory Infection, Tr. & Stud. Coll. Physicians, Philadelphia 7:342 (Feb.) 1940. Barenberg, L. H.; Greene, David, and Greenspan, Leon: Effect of Irradiation of the Air in a Ward on the Incidence of Infections of the Respiratory Tract. Am. J. Dis. Child. 59:1219 (June) 1940. Greene, David; Barenberg, L. H., and Greenberg, Bernard: Effect of Irradiation of the Air in a Ward on the Incidence of Infections of the Respiratory Tract with a Note on Variedla, ibid. 61:273 (Feb.) 1941.

5. Reyniers, J. A.: The Use of Mechanical Barriers in Preventing Cress Infections Among Hospitalized Infant Populations, University of Notre Dame Symposium on Germ Free and Micrurgical Technic, to be published.

control of air borne cross infections with the aid of air conditioning and mechanical barriers. This unit contains twelve completely closed cubicles, each provided with individual air conditioning. A tightly fitting swinging door separates each cubicle from the corridor

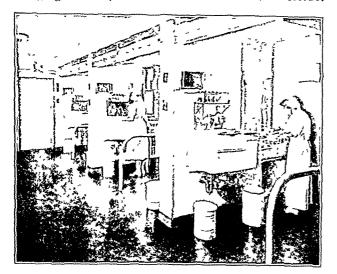


Fig. 3.—Light unit, there are germicidal light barriers at each cubicle entrance and between alternate cubicles

of the unit. Six cubicles are each subdivided by a sliding glass partition into an inner or infant's section and an outer or nurse's section. Each section has its own air intake and exhaust. The nurse enters the



Fig 4—Barrier unit, the partition between nurse's and infant's sections is partly raised.

outer section, prepares there for the care of the infant, raises the sliding glass partition not higher than to her shoulder level, attends the infant and then lowers the partition. A greater air pressure is maintained in the infant's section, so that the flow of air is toward the nurse's section whenever the partition is raised The remaining six cubicles are not subdivided.

Clinical observations and bacteriologic investigations were conducted to determine which of the three units was most efficient in controlling the spread of air borne infections.

#### CLINICAL OBSERVATIONS

The clinical observations were limited to infants in the first three months of life and included only the infections of the respiratory tract, such as the common Therefore, the conclusions could not be applied to older children or to other types of air borne infections, such as chickenpox. Despite these limitations several distinct advantages offered a unique opportunity for a clinicoepidemiologic study:

- 1. The three units were completely separated and usually had their own staff of nurses. The number of attendants was about the same in all the units.
- 2. Except for the special principles under investigation, the conditions in the three units were identicalconditioned air with the same temperature and humidity. equipment, individual aseptic technic and sterile food

3. The same number of infants of approximately the same age and the same number of premature infants

were admitted to all units. The stay was about the No same.

4 About the 15 same number of infants and nurses with acute infections of the respiratory tract were admitted to the units.

5. There were no visitors.

6. As hand borne ol

were practically units of new building (April 1, 1939 to eliminated at The light unit and 1 in barrier unit. I in Carolla areas in ferromagnetic formula areas are areas areas areas areas are areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas a

|Control Unit | Light Unit |Barrier Unit

Cradle, cross infec-

tions of the respiratory tract from infant to infant were considered air borne.

For clinicoepidemiologic information the following routine records were kept; an individual record of each infant, an individual record of each sick nurse and a daily report of the unit. Thus a complete retrospective epidemiologic picture of each unit was maintained.

The number of cross infections of the respiratory tract in infants during the two years before the new nursery was constructed was compared with that for the two years in the new building. There were 68 such infections during the former period and 17 during the The number per hundred infants admitted decreased from 14.5 to 4.6.

The distribution of the 17 cross infections in the three units was striking: 15 in the control unit, 1 in th' light unit and 1 in the barrier unit (fig. 5).23 This distribution was all the more significant because the number of primary infections of the respiratory tred (in nurses on duty and in infants admitted with colds) was about the same in the three units, as shown in the accompanying table.

⁵a Since April 6, 1941, six additional cross infections of 1-f2r13 E occurred in the control unit, none in the two other units.

Ten of the 15 cross infections of the respiratory tract in infants in the control unit occurred during a seasonal outbreak between Feb. 11 and April 5, 1941 (fig. 6). This infection in nurses as well as in infants was characterized by an almost afebrile course, profuse nasal discharge, frequent sneezing, spasmodic cough and, in some infants, pronounced wheezing of several days' duration with sonorous and sibilant rales, mostly during expiration. The spasmodic cough in the first infant was so severe as to lead to the suspicion of pertussis, but laboratory tests including examination of a cough plate did not show Hemophilus pertussis or Hemophilus influenzae. During this epidemic three infected nurses were on duty in the control unit, six in the light unit and three in the barrier unit. One infant was admitted to the barrier unit with an infection of the respiratory tract. Ten cross infections occurred in the infants in the control unit but none in either the light or the barrier Apparently conditions in the control unit (air conditioning) did not prevent the spread of this respiratory infection, whereas those in the light unit (air conditioning and germicidal light) and in the barrier unit (air conditioning and mechanical barriers) were efficient.

The detailed data compiled during this epidemic shed light on certain epidemiologic questions, such as the

Distribution of Primary Infections of Respiratory Tract in Three Units of New Building (April 1, 1939 to April 5, 1941)

	Control Unit	Light Unit	Barrier Unit
Primary infections of respiratory tract in nurses on duty	24	27	28
infants	3	1	7
Totals	27	28	35

spread and the source of the infection. Figure 6 shows that the spread of the infection was not irregular throughout the unit. At first the infants in about half of the unit showed signs of the infection (infants 1 to 5); then the infection spread to the rest of the unit. Infant 8 was admitted to the cubicle after infant 3 had left. It seemed as if a certain density of the infective agent was necessary to produce the disease and that this density occurred only in the vicinity of the infected infant (see bacteriologic investigations, figure 8).

Detailed data on the source of the infection showed that the infection was introduced into the control unit between February 24 and March 2 by one or two nurses who remained on duty with infections of the respiratory tract (fig. 7). No nurse or infant in this unit had had a cold for three weeks. On March 5 an infant showed the first signs of infection. There followed a period, March 10 to March 17, during which it was impossible to determine whether the transmission occurred from nurse to infant or from infant to infant, because during this period one nurse and 2 infants with infection were in the unit. Although no nurse with symptoms of infection of the respiratory tract was on duty after March 11, the infection continued to spread from March 18 to April 5 until 7 more infants were involved. As several of these infants were severely ill, they were removed from the unit as indicated in figure 7, which shows the duration of stay in the unit. This period of eighteen days demonstrated clearly that the infection spread from infant to infant. The role of carriers among the nurses was not borne out by our experience at The Cradle, which was that infection of the respiratory tract did not occur in an infant unless

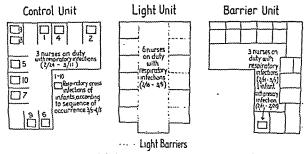


Fig. 6.—Epidemic of infections of respiratory tract (February 11 to April 5, 1941). Chart shows 3 cases of primary and 10 of secondary (cross) infection in the control unit; 6 of primary and 0 of secondary infection in the light unit, and 4 of primary and 0 of secondary infection in the barrier unit.

there was a primary infection in an infant or a nurse. It may be mentioned here that cultures of material from the nose and throat in nurses and infants showed the presence of Streptococcus hemolyticus only in the throats of two nurses, one of whom had had repeated colds.

During the two years in the new building there were ninety primary infections of the respiratory tract, seventy-nine among nurses and eleven among infants. In only 5 instances was it evident that a nurse had infected an infant; in 9 instances the transmission occurred from infant to infant; in 3 instances the source of infection could not be determined. As the nurses come in close contact with the infants, it is striking that transmission from nurse to infant was so infrequent. The filtering mask worn by the nurses usually protects the infant.6 Recent photographs by Jennison 5 showed that this mask filtered out droplets.

#### BACTERIOLOGIC INVESTIGATIONS 8

Although clinical observations were decisive, bacteriologic tests supplied valuable corroboratory evidence. One of the methods used was to spray a suspension of Bacillus prodigiosus in each unit and by means of exposed Petri dishes of culture medium to determine the

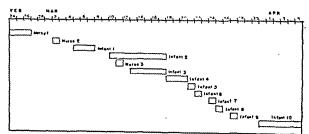


Fig. 7.-Sequence of eases in control unit during epidemic showing the duration of stay of infected nurses and infants in the unit. The infection was introduced by nurses and spread from infant to infant during the last period (March 18 to April 5).

extent of its penetration and survival. This harmless organism was chosen because it lent itself readily to unmistakable identification. It was used in 1926 by

^{6.} McKhann, C. E.; Steeger, A., and Long, A. D.: Hospital Infections, Illinois Health Messinger 10: 38 (March) 1938.
7. Personal communication to the authors.
8. In collaboration with E. Kammerling, B.S., Department of Health,

City of Chicago.

Działoszinski and Finkelstein. To simulate the various sites of possible source of infection, the suspension was sprayed in a cubicle in one series of experiments and in the unit corridor in another series. In each experiment plates were exposed throughout the unit. After

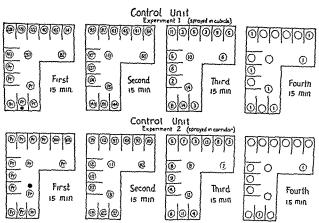


Fig 8—Penetration and survival of B prodigiosus in control unit. In experiment 1 a suspension of the organism was sprayed in a cubicle and in experiment 2 in the corridor. The illustration shows penetration into all parts of the unit and the presence of some organisms after forty five minutes. Black dots, site of spraying, numbers in circles, plates exposed and numbers of colonies, Pr, profuse growth.

an incubation period of forty-eight hours at room temperature the number of colonies was counted.

Figure 8 illustrates the findings in two typical experiments in the control unit. In experiment 1 B. prodigiosus was sprayed in a cubicle; in experiment 2 it was sprayed in the unit corridor. Plates were exposed for four consecutive fifteen minute periods. In each experiment the colony count demonstrated complete penetration into all parts of the unit. Some organisms were still present forty-five minutes after the spraying. The number of bacteria decreased with the distance from the site of spray.

Similar experiments were conducted in the light unit (fig. 9). It was found that practically no penetration occurred from unit corridor to cubicle or from cubicle to unit corridor. The survival time was limited to the first fifteen minutes, i. e., B. prodigiosus was not found on any plate in the unit fifteen minutes after the spraying. These experiments were performed with newly installed lights. Lights in constant use for about four months showed some diminution in germicidal

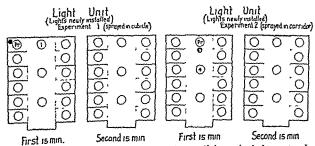


Fig. 9.—Penetration and survival of B. prodigiosus in light unit. In experiment 1 the suspension was sprayed in a cubicle and in experiment 2 in the corridor. There is practically no penetration, and survival is for not more than fifteen minutes.

power. Experiments with the lights off gave results similar to those in the control unit.

Throughout the barrier unit, where doors and partitions had to remain closed during the experiment,

plates were exposed continuously for one hour. There fore, only the extent of penetration and not the survivatime could be determined. The results (fig. 10) showe that there was no penetration from cubicle to cubick some from cubicle to unit corridor (as was expected and but slight penetration from unit corridor to cubicle

#### COMMENT

These bacteriologic data on the spread of B. prodigiosus parallel the clinical observations on spread of infections of the respiratory tract in the three units both over the two year period and during the seasonal epidemic. Fifteen of 17 cross infections of infants occurred in the control unit, where also the seasonal epidemic broke out. B. prodigiosus, when sprayed in a cubicle of the control unit, penetrated into all the other cubicles of the unit. When sprayed in a cubicle of the light or the barrier unit this organism did not penetrate into other cubicles of the unit.

During the two years the principle of air conditioning alone, as used in the control unit, did not prevent the spread of infections of the respiratory tract, whereas the addition of germicidal light barriers or mechanical harriers was efficient. Which of the two principles is the one of choice cannot yet be decided. Each has its advantages and disadvantages, several of which may be mentioned. Germicidal light barriers require pro-

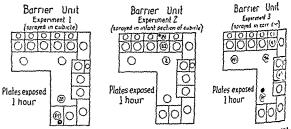


Fig. 10—Penetration of B prodigiosus in barrier unit. In experiment 1 a suspension was sprayed in a cubicle without a partition, in experiment 2 in the infant's section of a cubicle with a partition and in experiment 1 in the corridor. There was no penetration from cubicle to cubicle, corpenetration from cubicle to corridor as was expected, and slight person tion from corridor to cubicle.

tection of nurses and infants to prevent local effects on the skin and the conjunctivas. Investigations on any systemic effects have not yet been made. No harmful effects have been noted. The installation cost of the light is low, but the maintenance cost is high, regular The mechanical lamp replacements being required. barriers have been found somewhat inconvenient by the nurses, because the partitions must be raised and lowered each time an infant is attended. The infant cannot be observed readily. After a few weeks a certain lack of stimulation of the infant is occasionally apparent. On the other hand, the infant is protected against noise, so that the average daily sleeping time is about two hours longer than in the other units. The installation of mechanical barriers is expensive, but the maintenance Whether light barriers or mechanical cost is low. barriers are equally efficient without air conditioning is now under investigation.

#### CONCLUSIONS

Air conditioning, as used at The Cradle, did not prevent cross infections of the respiratory tract in infants.

Air conditioning and germicidal light barriers or air conditioning and mechanical barriers prevented such infections in infants.

^{9.} Dzialosziński, Ismar, and Finkelstein, H.: Was leisten offene Bosen bei der Bekämpfung der Tröpfchemnfektion ir Kinderspitälern? Ztschr. f. Kinderh. 41: 625, 1926.

# DANGERS OF AERIAL TRANSPORTA-TION TO PERSONS WITH PNEUMOTHORAX

ROENTGENOGRAPHIC DEMONSTRATION OF THE EFFECT OF DECREASED BAROMETRIC PRESSURE (HIGH ALTITUDE) AND OF INCREASED BAROMETRIC PRESSURE

> W. RANDOLPH LOVELACE II, M.D. Major, M. C., U. S. Army; Assistant Air Surgeon AND

H. CORWIN HINSHAW, M.D. ROCHESTER, MINN.

Free gas within the human body tends to increase in volume when a person ascends in altitude and to decrease in volume when the atmospheric pressure is increased. This is in accordance with Boyle's law, which states that the volume occupied by a given quantity of gas is inversely proportional to the absolute pressure exerted on it (figs. 1, 2 and 3). Gas enclosed within a body cavity is under pressure of the external atmosphere, but this pressure can be modified significantly by the elastic properties of the walls of the enclosing organ and by pressure of surrounding structures. Those body cavities which communicate with the external atmosphere, such as the paranasal sinuses. are capable of equalizing pressure changes, provided the ostiums are not obstructed, but such equilization is not possible within the cavity of a closed pneumothorax. These changes occur at comparatively low altitudes; for example, 1,000 cc. of air (saturated with water vapor at 37 C.) becomes 1,500 cc. of air at the moderate altitude of 10,000 feet above sea level, since the volume of gas thus enclosed in the body tends to vary in volume according to the ratio  $\frac{760.47}{Bar-47}$ . It must be noted that air within body cavities is saturated with water vapor and that the pressure of water vapor at 37 C. is 47 mm. of mercury. This ratio omits the small factor of negative intrapleural pressure, which amounts to only a few millimeters. It is obvious that the higher the altitude reached, the greater is the effect of water vapor (fig. 1).

Pneumothorax is of particular interest to the physician who deals with problems of aviation medicine. Under no other conditions is such a large quantity of gas enclosed within the body cavities with no means of escape. This large quantity of gas is enclosed by tissucs which are usually elastic, offering little resistance to expansion. The adjacent organs are of extreme physiologic importance, and their functions may be seriously impaired if they are much compressed. Phthisiologists have learned that it is essential that artificial pneumothorax be maintained under as uniform a pressure as is practicable and that great caution be exercised to avoid either excessive reexpansion of the lung or excessive compression of the lung in refilling the pneumothorax cavity. Rapid and frequent and decided contraction and expansion of the collapsed lung might well be deleterious to the healing process. These precautions are necessary to prevent mechanical forces from interfering with the healing of tuberculous lesions by fibrosis and to prevent the rupture of pleural adhesions, which so frequently are present. Adhesions frequently are attached to diseased lung tissue and when torn loose may result in a seeding of the pneumothorax cavity with Mycobacterium tuberculosis and

From the Division of Surgery (Dr. Lovelace), and the Division of Medicine (Dr. Hinshau), the Mayo Clinic.

the production of pleuritis, which may obliterate a valuable pneumothorax space or even lead to tuberculous empyema. Excessive compression of the lung also may reduce the vital capacity seriously and produce displacement of mediastinal structures with uncomfortable or even serious results. If expansion of the gas within the cavity does not occur, even greater strain might be placed on intrathoracic structures.

Further study of the effect of altitude on pneumothorax is especially timely because of the rapidly increasing use of the airplane as a means of long distance transportation.¹ The number of persons for whom artificial pneumothorax has been carried out is steadily increasing as a result of the increasing favor of this method of treating pulmonary tuberculosis. In a large majority of cases of active pulmonary tuberculosis, treatment by artificial pneumothorax is the treatment of choice. When satisfactory collapse is obtainable symptoms are promptly controlled, and as long as the state of collapse is maintained lesions usually remain latent. It has not been possible to determine when pneumothorax may be discontinued with safety; hence many physicians are recommending that pneumothorax be continued for several years and sometimes for many years, even though the patient remains well and an active member of society. As a result there are now thousands of persons with pneumothorax and many of them will be so maintained for years, if not for their entire lifetime. Furthermore, traumatic pneumothorax is not uncommon in injuries to the thorax, and spontaneous pneumothorax occasionally develops. For these reasons we believe it to be extremely important that physicians and patients learn all that can be known of the physiologic and pathologic effects of flight on the patient with pneumothorax,

In 1940 Gellenthien,2 in an article on altitude and artificial pneumothorax, pointed out that a factor which may upset the equilibrium of a perfect collapse and be dangerous to the patient is the change in atmospheric pressure resulting from decided changes in altitude in traveling either by air or by surface transportation in mountainous regions. A formula was given to determine how high a person with a pneumothorax can go without the occurrence of positive pressure after a fresh supply of air has been injected into the pleural cavity. One of us in 1940 pointed out the effect of decreased barometric pressure on the volume of gas in a closed pneumothorax.

It is immediately obvious that clinical and physiologic studies should be conducted among patients with pneumothorax to determine, if possible, how closely the theoretical hazards and the practical hazards of airplane travel coincide. Clinical experience has taught that many patients with artificial pneumothorax may fly as passengers in commercial airplanes and suffer no immediate ill effects. Complaints have been so few that most physicians have not warned such patients to avoid flying. It is certain that these physicians would be most alarmed should an artificial pneumothorax be refilled with 1,000 cc. of air or more; yet this is precisely what should happen, theoretically, when a patient with a large pneumothorax cavity ascends to the moderate altitudes frequently attained by commercial planes.

I. Lovelace, W. R., II. and Hinshaw, H. C.: The Hazards of Aerial Transportation to Patients with Pneumothorax, Proc. Staff Meet., Mayo Clin. 16: 40 (Jan. 15) 1941.

2. Gellenthien, C. H.: Altitude and Artificial Pneumothorax, J. A. M. A. 114:727-728 (March 2) 1940.

3. Lovelace, W. R., II. in discussion, J. Aviation Med. 11: 9-11 (March) 1940.

In 1929 Rabino ⁴ reported a case in which discomfort during aerial flight occurred in a patient with artificial pneumothorax. In the same year Margaria, Talenti and Reviglio ⁵ reported their results of experiments on animals and advised against the aerial transportation of patients with artificial pneumothorax.

It would appear to be extremely important to determine by accurate roentgenographic methods whether or not the calculated expansion of pneumothorax during flight actually occurs or whether expansion is restrained and relative positive pressure develops. The theoretical degree of expansion which occurs at high altitude and an analysis of the several factors contributing to it have been published by Gellenthien and were discussed by one of us (Lovelace) in 1940.

Verification of these theoretical effects could not be conveniently accomplished during actual flight because of technical roentgenologic difficulties, but it is possible

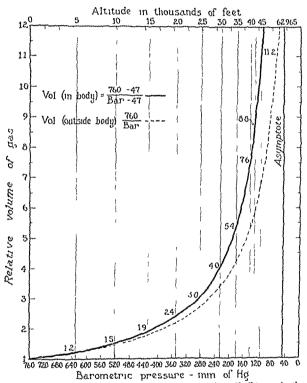
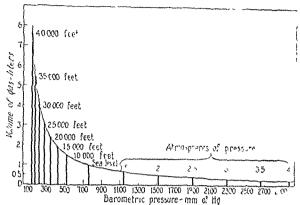


Fig. 1.—Comparative volumes of gases (saturated at 37 C) inside the body at various attitudes. The pressure of water vapor at 37 C,  $(98.6 \ \Gamma)$  equals 47 mm, of mercury.

to simulate any desired altitude within a low pressure chamber which is capable of accommodating the patient and the necessary apparatus. We have carried out this procedure in the Mayo Clinic Laboratory for Research in Aviation Medicine (Dr. Walter M. Boothby, director) and have been able to obtain roent-genograms of the thorax of good technical quality which clearly reveal the changes which occur in the size of a pneumothorax cavity when the pressure of the external atmosphere is either increased or decreased.

As anticipiated, there was considerable variation among different patients. A few were found whose pneumothorax did not expand to the degree anticipated by the application of Boyle's law. In these instances it was possible to explain the failure of the pneumo-

thorax to expand on the basis of thickened pleura, adhesions, small capacity or other mechanical factors. One such patient underwent external pressures varying from two atmospheres to a half atmosphere with no visible differences in the roentgenograms. In this instance the condition of artificial pneumothorax was



1 ig 2—Comparative volumes of gases (saturated at 37 C) inside the body at various increased and decreased barometric pressures

being discontinued, and the negative pressure doubtless was unusually high. The patient had recently suffered from severe pleuritis, and a considerable degree of pleural thickening was visible in the roentgenograms of the thorax. This patient experienced no subjective symptoms during the study, but the intrapleural pressures must have varied widely in relation to the other thoracic structures.

Another patient was studied for whom extensive basal pneumothorax had been established and who had been receiving frequent large "refills" under positive pressure by his home physician, with the production of a posterior basal mediastinal hernia and considerable dyspnea and thoracic discomfort. In figure 4 a is shown the appearance of this particular pneumothorax at Rochester (elevation 1,000 feet above sea level) and in figure 4 b is depicted the effect resulting from pressure of two atmospheres (1,525 mm. of mercury). These figures demonstrate that the pneumothorax cavity was reduced to approximately half its former size, with consequent reexpansion of the lung and relief of

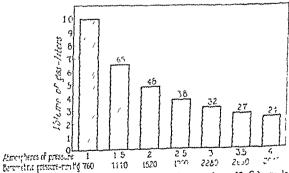


Fig. 3—Comparative volumes of gives (entirated at 37 C) in the body at various increased atmospheric pressures

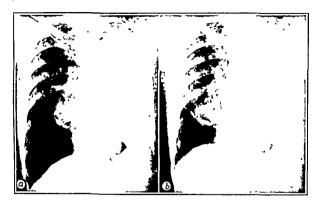
the patient's dyspnea as long as the external pressure was maintained (figs. 2 and 3). By this method it was possible to visualize roentgenographically how the pneumothorax, the lung and the mediastmum would appear when the pneumothorax was reduced in volume by a half, and this was accomplished without entering the pneumothorax cavity and within a few minutes time.

⁴ Rabino, A.: Pericoli dei viaggi aerei durante li cura pneumotoracica, Minerva med. (pt. 1) 9:624626 (April 28) 1929

5. Margaria, R.; Talenti, C., and Resigho, G. M.: Modificazioni indotte dalla depressione barometrica sul pneumotorace: Studio speri mentale radiologico, Minerva med (pt. 2) 9:637-647 (Oct. 27) 1929

Three other patients entered the low pressure chamber, and the external pressure was reduced to simulate the effect of altitude of from 8,000 to 12,000 feet. Two of these patients had experienced discomfort during flight, and the procedure reproduced these symptoms. In 1 of these patients severe pleuritic pain in the anterior part of the thorax had developed on his ascent in a commercial passenger airplane to an altitude of 9,000 feet. He had sought medical advice as to the safety of this form of transportation in the future. The conditions of this flight were simulated in a low pressure chamber. The extent of the pneumothorax at ground level (1,000 feet), with extensive adhesions between the lung and the thoracic wall which appeared to be adequate to account for his pain, is shown in figure 5 a. The effect of simulated ascent to 10,000 feet is shown in figure 5 b. The effect on the small circumscribed basal pocket containing some fluid is especially apparent.

Another instance illustrating the effect of altitude on a pneumothorax is shown in figure 6a and b. The appearance at ground level (1,000 feet) is shown in figure 6a, and the effect of a simulated ascent to 10,000 feet is shown in figure 6b. This patient had flown frequently and it was strongly suspected that the pleural



lig. 4.—Basal pneumothorax and mediastinal hernia to contralateral side. a, appearance of the thorax at Rochester ground level (1,000 feet above sea level); b, appearance when atmospheric pressure is increased to twice that of sea level

effusion was the result of the frequent, rapid and decided changes in the degree of collapse. The degree of collapse produced in the low pressure chamber was very similar to that which would be anticipated by the application of Boyle's law. It is important to emphasize the fact that great changes in pneumothorax volume were observed in these studies, with little or no subjective discomfort for 2 of the patients. Such large changes in volume would appear to be very hazardous, but the patient's subjective symptoms would not always give warning of these apparent hazards. When symptoms did appear, they were apparently attributed to traction exerted on pleural adhesions or to reduction in vital capacity as a result of excessive collapse. Willcox and Foster-Carter ⁶ reported a case in which spontaneous pneumothorax occurred, during flight, in a pilot who had associated bullous emphysema as proved by roentgenograms and necropsy.

It would appear to be impossible to predict the safe "ceiling" for any patient with pneumothorax without actually subjecting him to flight or to experiments within a low pressure chamber, including the making of serial roentgenograms. Previous experience in flight

at low altitudes may give a patient a false impression of safety, encouraging him to engage in further flight in which higher altitudes are reached, because of weather conditions or because of the duration of the flight, with discomfort or actual danger to the patient. The evidence accumulated seems adequate to justify warning all



Fig. 5—Partial artificial pneumothorax: a, appearance at Rochester ground level; b, appearance at simulated altitude of 10,000 feet above sea level. Compare size of basal fluid containing air pocket and of large apical pneumothorax with that in figure 5 a

patients with pneumothorax to avoid transportation by airplane unless they can be assured that no altitude will be attained beyond that which they have previously tolerated without discomfort. Even under the latter condition it is possible that some harm might be done to unstable tuberculous lesions by the rather large degrees of alternate expansion and collapse which may be occurring repeatedly during a flight, especially when there are frequent landings. Traumatic or spontaneous pneumothorax would be affected in a manner similar to that described for artificial pneumothorax.

It should be reemphasized at this time that transportation by airplane offers no such hazards for those who do not possess pneumothorax, and that the exceptional comfort and speed available in modern airplanes, as well as care by stewardesses who are registered nurses, make airplane travel an ideal method of transportation for most patients. We believe, as a matter of fact, that physicians should encourage their patients to use the air-

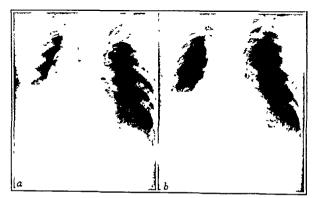


Fig. 6.—Hydropneumothorax: a, appearance at Rochester pround level; b, appearance at simulated altitude of 10,000 feet.

plane as a preferred mode of transportation. It is definitely superior to the automobile if the distance involved is considerable.

#### SUMMARY

Roentgenographic studies of the effects of increased and decreased barometric pressure on pneumothorax have been made. It has been possible to demonstrate

⁶ Willow, A., and Foster-Carter, A. F.: Spontaneous Pneumotherax Associated with Bullous Emphysema, Lancet 2:315-317 (Aug. 7) 1937.

that the principle of Boyle's law applies to closed free pneumothorax. The degree of increased pulmonary collapse produced by a simulated increase in altitude, however, may be restricted by pleural adhesions, by thickening of the visceral pleura and by fixation of the mediastinum. The moderate altitudes (5,000 to 12,000 feet) commonly attained by commercial passenger carrying airplanes are sufficient to produce a pronounced increase in the size or the pressure of a pneumothorax, whether this is of therapeutic, spontaneous or traumatic origin. The dangers attending fluctuations in degree of pulmonary collapse are increased shortly after "refilling" of a pneumothorax, when pleural adhesions are present, when disease in the collapsed lung recently has been active, when the patient's vital capacity is limited or when the pneumothorax is unusually extensive, Patients with a pneumothorax created for therapeutic reasons should be warned of these dangers, and physicians who care for injured persons should recall the possibility that traumatic pneumothorax might be present, presenting similar hazards if the patient is transported by airplane.

# HEPATIC CHANGES PRODUCED BY ESTRONE, ESTRADIOL AND DIETHYLSTILBESTROL

CYRIL M. MACBRYDE, M.D. DANTE CASTRODALE, M.D. ELSON B. HELWIG, M.D. AND OLGA BIERBAUM, B.S. ST. LOUIS

In a previous communication we 1 showed that both diethylstilbestrol and estradiol may produce profound changes in the bone marrow and peripheral blood of dogs. The doses of these estrogens were in excess of the therapeutic range used in man. Changes in the liver consisting of fatty degeneration and central necrosis also were observed following the use of both However, these changes were not consistent and at the time we were unable to determine whether the hepatic change was the result of direct damage to the liver by the drugs or whether the hepatic damage was secondary to the changes in the bone marrow and peripheral blood.

Extensive clinical studies have resulted in a variance of opinion among different groups regarding the toxicity of diethylstilbestrol. Although some workers have suggested that side actions such as nausea may be the result of hepatic damage, no direct proof of this has been determined. One report implies that histopathologic hepatic changes may have been produced in a patient as the result of the administration of diethylstilbestrol.2 Davis,3 in 5 cases in which large doses of diethylstilbestrol were administered, found no histologic hepatic change which he felt could be attributed to the drug. Our studies indicate that any liver change occurring in dogs receiving diethylstilbestrol may also

be found as the result of the administration of estrone or estradiol. It should be emphasized that microscopic studies of the livers of patients who have received large doses of the so-called natural estrogens are as yet wholly lacking. Apparently the "natural" or animal origin of these estrogens has not led to the suspicion that they might produce hepatic damage, while the synthetic nature of diethylstilbestrol immediately led to such

# PLAN OF STUDY

It seemed desirable to ascertain by a parallel study the effect on the livers of dogs of the more commonly used natural estrogens estrone and estradiol and of the synthetic estrogen diethylstilbestrol when administered in estrogenically equivalent doses.

As has been previously shown, natural or synthetic estrogens when administered to dogs produce profound changes in the blood and bone marrow. With progression of these changes, thrombocytopenic purpura occurs, which is followed by severe anemia and cachexia. It seemed possible that the anemic and the cachectic states might of themselves produce hepatic damage or might enhance previously existing hepatic damage and thereby interfere with the interpretation of the changes which might be produced in the liver by the estrogenic substances. In the present study, to avoid these possible complicating factors in the interpretation of the changes in the liver, we killed the animals before hemorrhage occurred.

# MATERIALS AND METHODS

Eleven healthy dogs were used, 6 males and 5 females. All the animals were kept in the animal quarters for approximately two weeks before the studies were begun. In addition 4 dogs, 3 males and 1 female, served as controls and were examined post mortem at the end of the conditioning period. During this period of adjustment, red, white, differential, reticulocyte and platelet counts were done on the peripheral blood. After the experiments were started the peripheral blood elements were studied at frequent intervals.

The estrogens used were estrone, estradiol benzoate and diethylstilbestrol dipropionate. These substances were administered daily by intramuscular injection. Crystalline diethylstilbestrol dipropionate was also given by mouth.

In order that comparative observations might be made, the estrogenic potency of the estrone, estradiol benzoate and diethylstilbestrol dipropionate was calculated in terms of international units. Because of the diverse nature of these estrogens and the different methods of assay used in estimation of their potency, comparisons can of necessity be only approximate. One mg. of estrone is equivalent to 10,000 international units. Estradiol benzoate has a potency of 6,000 rat units per milligram. One mg. of diethylstilbestrol dipropionate is equivalent to 20,000 international (estrone) units. It is widely accepted that 1 rat unit is approximately equivalent to 10 international units. Therefore 5 mg. of diethylstilbestrol dipropionate is calculated to have roughly the same estrogenic potency as 1.66 mg. of estradiol benzoate or 10 mg. of estrone (100,000 international units). It must also be remembered that the esterification of estrogens as the dipropionate or the benzoate also influences the comparison of the endocrine activity, both as to potency and as to duration of action.

A preliminary report of this work was read before the Central Society for Clinical Research, Chicago, Nov. 7, 1941.

From the Department of Medicine and the Department of Pathology, Washington University School of Medicine, and the Barnes Hospital.

1. Castrodale, Dante; Bierbaum, Olga; Helwig, E. B., and MacBryde, C. M.: Comparative Studies of the Effects of Estradiol and Stilbestrol on the Blood, Liver and Bone Marrow, Endocrinology 29: 363-373 (Sept.) 1941.

on the Blood, Liver and Bone Marrow, Endocrinology 29: 363-373 (Sept.) 1941.
2. Taylor, S. G., and Thompson, W. O.: Treatment of the Menopause with Stilbestrol, J. Clin. Endocrinol. 1: 411-415 (May) 1941.
3. Davis, M. E.: A Clinical Study of Stilbestrol, Am. J. Obst. & Gynec. 39: 938-953 (June) 1940.

^{4.} Estrone for these studies was supplied by Roche-Organon, Inc., Nutley, N. J. Estradiol benzoate was supplied by the Medical Research Division of Schering Corporation, Bloomfield, N. J. Diethylullestrel was furnished by the Department of Medical Research of the Winthrep Chemical Company, New York.

Three dogs each received 100,000 international units of estrone (10 mg.) daily by injection. A group of 3 dogs were each given 10,000 rat units (1.66 mg.) of estradiol benzoate daily by injection. Diethylstilbestrol dipropionate was given to each of 3 dogs by daily injection in doses of 5 mg. (approximately 100,000 international units). Thus each dog in each of the three groups was given a daily dose of the respective estrogen approximately equivalent to 100,000 international (estrone) units

tional (estrone) units.

One male and 1 female dog were given 400,000 international units (20 mg.) of crystalline diethylstilbestrol daily by mouth. This dose is four times that given by injection and is not calculated to be comparable in estrogenic potency to the estrogens given by injection.

All animals were killed when a severe thrombocytopenia developed but before the purpuic and hemorrhagic states occurred. Portions of liver and bone marrow from selected sites were immediately fixed in Bouin's solution. In addition, portions of liver were fixed in absolute alcohol and examined for glycogen by Best's carmine stain and in solution of formaldehyde U. S. P. diluted 1:10 and examined for fat by the scarlet 1ed and nile blue sulfate stains.

#### RESULTS

Liver.—The changes produced in the livers of the dogs receiving the different types of estrogenic substances were essentially similar. These alterations varied among the groups of dogs receiving different estrogenic substances, but this variation was no more pronounced than in a single group of dogs receiving the same estrogenic substance. In general the changes occurring in the parenchymal cells of the liver were not prominent.

Of the 3 dogs receiving diethylstilbestrol by injection, 1 showed slight to moderate fatty degeneration confined chiefly to the middle zones of the liver lobules and slight shrinkage of the hepatic cells centrally. The

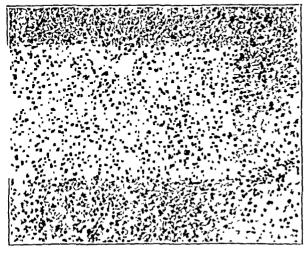


Fig. 1 (dog. 19)—No drug given. Normal liver. The cytoplasm is rich in glycogen. In all four photomicrographs the stain was hematoxylin and cosin, and all are slightly reduced from a magnification of 133 diameters.

livers of the other 2 dogs exhibited slight fatty and hydropic degeneration of the hepatic cells confined chiefly to the central zones but not involving all central zones.

Of the 3 dogs receiving estradiol benzoate by injection, 1 showed moderate to advanced fatty and hydropic degeneration of the hepatic cells centrally and a slight

fatty degeneration of the other hepatic cells. There was moderate intracellular and extracellular hemosiderin in fine granules present in the central zones. There were a few polymorphonuclear leukocytes present in the central zones, but no fibrin was identified. The hepatic changes in the other 2 dogs consisted of slight



Lig. 2 (dog 30).—Diethylstilbestrol. Minimal fatty degeneration, predominantly central. Myelopoiesis about central vein.

shrinkage of the cells centrally and in some instances mild fatty and hydropic degeneration of the cells in the central zones.

Of the 3 dogs receiving estrone, 1 exhibited advanced fatty and hydropic degeneration of the hepatic cells centrally together with loss of nuclei and cell outlines in some instances. There was no noticeable infiltration of polymorphonuclear leukocytes within the vacuolated areas, although many of the zones contained foci of myelopoiesis. The hepatic changes in the remaining 2 dogs consisted of slight shrinkage of the central cells in some instances and occasionally slight fatty degeneration of the hepatic cells.

Of the 2 dogs receiving diethylstilbestrol by mouth, the liver of 1 showed a minimal amount of central fatty degeneration and slight shrinkage of cells centrally. The liver of the other dog showed a minimal amount of fatty degeneration diffusely distributed throughout the labeles.

The amount of fat present within the livers as determined by the scarlet red and nile blue sulfate stains was at times no more pronounced in those animals receiving the various types of estrogen than it was in normal animals.

In several specimens the vacuoles within the hepatic cells failed to stain with scarlet red but took a blue or purple tint with the nile blue sulfate stain. In a few specimens the hepatic cells centrally contained vacuoles which failed to stain with either the scarlet red or the nile blue sulfate stain and were considered to be hydropic degeneration.

The amount of glycogen present within the livers as determined by Best's carmine stain showed considerable variation but was usually scanty. In no instance could glycogen be demonstrated in the large clear vacuoles. No correlation could be established between the amount of glycogen present and the degree of fatty and hydropic degeneration. Our observations are therefore at variance with those of Teague, who studied

^{5.} Teague, R. S.: The Effect of Estrogens on the Microscopic Appear ance of the Liver, J. A. M. A. 117: 1242-1243 (Oct. 11) 1941

the effects of diethylstilbestrol and of estradiol on the livers of rats. He concluded that the vacuolization of the liver cells was due to accumulation of glycogen rather than to hydropic or fatty degeneration.

One of the most striking findings in the liver was the occurrence of foci of myeloid cells about the central veins and occasionally about the portal spaces. These cells varied from predominantly immature myeloid cells to predominantly mature polymorphonuclear leukocytes. In those animals in which the hyperplasia of the bone marrow was least pronounced the liver usually contained fewer and smaller foci of myeloid cells. In those animals in which myeloid foci were present in the liver the degree of maturation of the myeloid cells in the liver tended to parallel the degree of maturation of myeloid cells in the bone marrow. An occasional mitotic figure was encountered in the foci of myeloid cells in the liver.

Bone Marrow.-Examination of the bone marrow from the vertebrae, ribs and long bones revealed an alteration of the normal marrow elements. This alteration showed slight quantitative variations but was otherwise essentially similar in all instances, regardless of the type of estrogen used. In general, regardless of the type of estrogenic substance employed, the marrow showed a variable degree of hyperplasia, predominantly of the myeloid elements. However, the state of maturation of the myeloid cells was variable, some marrows showing predominantly immature cells, some showing predominantly mature polymorphonuclear leukocytes and others showing focal areas composed chiefly of either immature or mature cells. The degree of maturation was usually more advanced in marrows studied from the long bones and ribs than it was in marrow selected from the vertebrae. In many instances the erythrogenic elements were obscured by the myeloid hyperplasia, but in general erythrogenesis appeared reduced. In a few specimens there were scattered small foci of hypoplasia in which the erythrogenic cells predominated. The stroma within these foci was loose and

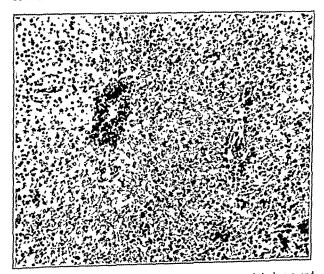


Fig. 3 (dog 24).—Estradiol benzoate. Minimal central hydropic and ratty degeneration. Myelopoiesis about central vein.

edematous and frequently took a faintly basophilic or acidophilic stain. One of the most constant changes throughout all the specimens of marrow studied was a sharp decrease in the number of megakaryocytes. In many instances several microscopic low power fields failed to disclose a single megakaryocyte. Occasionally these cells showed shrunken basophilic nuclei, but this was not a striking feature. Other megakaryocytes contained only two to three nuclei.

Peripheral Blood.—Essentially the same response was produced in the peripheral blood elements by estrone and estradiol benzoate as was observed with diethylstilbestrol dipropionate. The changes produced by the

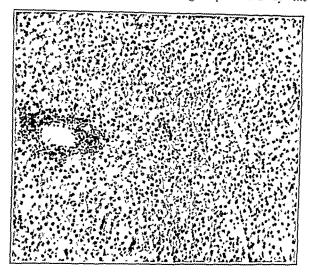


Fig 4. (dog 39).—L-trone. Slight central fatty degeneration. Myclopotesis about central vein.

various estrogens were indistinguishable as to quality and degree. The findings in each group consisted of leukocytosis and an almost simultaneous rapid fall in the thrombocytes. In some instances the platelets disappeared entirely from the blood. A moderate decrease in the red blood cells and hemoglobin was observed to follow the rise in granulocytes. The decrease in red blood cells and hemoglobin took place in the absence of hemorrhage, the occurrence of which we were careful to avert. These animals were not allowed to run their full course, since in this study we were primarily interested in hepatic changes. A full report of hematologic observations has been published.\(^1\)

# COMMENT

Until comparatively recently it was believed that all estrogenic substances must contain the phenanthrene nucleus. It is now known that many synthetic compounds not containing the phenanthrene nucleus are estrogenic. Diethylstilbestrol, the most widely studied of the synthetic estrogens, is approximately twice as potent when injected intramuscularly as the natural hormone, estrone. Even more important from the clinical standpoint is the fact that, unlike the natural estrogens, it is highly effective when taken orally. Since diethylstilbestrol does not occur in the animal body, it must be considered a drug rather than a hormone. For this reason a great deal of attention has been devoted to its possible toxic effects. Studies of hepatic function performed by ten different groups of workers on a large number of patients have not shown any clearent evidence of damage to this organ.6

The fact that several investigators have found evidence of hepatic damage resulting from the administration of diethylstilbestrol when given in very large do-es

^{6.} Morrell, J. A. Summars, of Some Clinical Reports on Sulleans, J. Clin Endocrinol. 1: 419-424 (May) 1941

7. Loeser, A. Klin Webnisch: 18: 346, 1939 Grandecks, P. of J. Loeser, A. Klin Webnisch: 18: 1195, 1939. Selye, Hars, C. of M. A. J. 41: 48 (July) 1939, von Harn, Emmerick; H. of M. A. J. 41: 48 (July) 1939, von Harn, Emmerick; H. of Mari, V. A. Rardin, T. E., and Scheene, R. H. Friedmarkery 28: 263-274 (Feb.) 1941.

to animals indicates the need for a study such as the one presented here. The synthetic nature of diethylstilbestrol has no doubt caused the concentration of toxicity studies on it. Heretofore the possible toxic effects of the so-called natural estrogens have been neglected. We therefore have given approximately equivalent estrogenic doses of the natural hormones and of diethylstilbestrol to dogs and have studied the effects. The results of the present study confirm our previous observations 1 that diethylstilbestrol and estradiol produce similar effects on the blood and bone marrow of dogs. We have in addition, as shown in the table, found

observation or tests of hepatic function any evidence of damage to the liver among a large number of patients treated with diethylstilbestrol. It seems unlikely that the usual therapeutic doses of diethylstilbestrol or of the natural estrogens will produce hepatic damage. There may, of course, be a great difference in species susceptibility, but it would seem possible that extremely large doses of either synthetic or natural estrogens might produce changes in the liver in human beings. We may conclude from this study that, when given to dogs, large doses of the natural estrogens estrone and

Liver and Blood Changes Produced by Estrogens

										Blo	od Chai	nges			_
		Daily	Day	Total				2. М. 2		Mve lo-	Red Blood Cells	Hemo	globin	Platelets	Reticulo cytes
Dog	Drug	Dose	Killed	Dose	Hepatic Changes	Day	w.b c			scytes					•
12 Q	Diethyl- stilbestrol	5 mg	20	100 mg	Slight central fatty and hy- dropic degeneration, moderate myelopolesis, maturation variable	1 15 18	22,000 44,000 82,000	42 44 33	7 35 51	0 0 3	6,090 5,150 4,810	14 6 11 9 12 4	94 77 80	1,150,000 \$1,000 4,800	4 4 2 4 0 0
.0 ♂	Diethyl stilbestrol	ā mg	17	85 mg.	Minimal fatty degeneration, predominantly central; moderate myelopoiesis, predominantly mature	1 11 17	9,950 31,300 93,000	68 76 53	9 10 36	0 0 2	5,370 5,500 4,950	12 9 12 4 11 9	84 80 77	1,300,000 350,000 19,000	04 02 02
33 Q -	Diethyl stilbestrol	5 mg	16	80 mg.	Moderate mid/onal fatty degeneration; minimal myelo poiesis	1 13 16	13,350 34,900 85 500	69 65 58	13 22 22	0 0 15	5,240 6,660 4,420	15 8 17 7 11.7	102 115 76	1,020,000 90,000 0	02 1,2 02
⊍ເ ຊື	Estradiol benzoate	1 6 mg	20	32 mg	Advanced central fatty and hydropic degeneration; slight myelopoiesis, predominantly mature	1 12 20	21,500 39,000 56,950	60 61 60	4 11 27	0 0 2	6,000 6,040 7,200	15 0 12 2 15 9	97 79 103	1,500,000 450,000 35,000	0 4 1 8 0 4
51 Q	Estradiol benzoate	16 mg	17	27 2 mg.	Minimal central fatty and hy- dropic degeneration, slight erythropolesis; moderate myelo- polesis, predominantly mature	1 8 17	22,200 44,700 47,000	54 63 43	9 16 33	0 0 15	5,030 5,000 1,790	12 7 12 3 4 5	83 79 29	980 000 600,000 0	2 6 2.0 0 1
31 Q	Estradiol benzoate	16 mg.	17	27.2 mg	Slight shrinkage of hepatic cells centrally; minimal myelopoiesis, equal degree of mature and immature	1 10 17	23,600 51,900 83,000	65 54 42	5 27 36	0 1 8	5 030 4,700 2,030	13 4 12 4 4.9	86 80 31	905,000 500,000 4,000	0 0 0 1 0 0
59 đ	Estrone	10 mg	18	180 mg	Slight central fatty degenera- tion; moderate myelopoiesis, predominantly mature	1 13 18	9,900 24,800 27 000	55 32 50	4 17 35	0 1 2	6,440 6,320 4,450	15 2 15 0 9 2	98 97 60	1,700,000 100,000 4,400	10 10 00
41 Q	Estrone	10 mg	55	220 mg	Advanced central fatty and hy- dropic degeneration moderate myelopoussis, mature	1 13 19	19,500 38,800 45,000	48 55 56	7 16 30	0 0 4	6,520 6 260 5,200	15 5 12 3 13 6	100 79 88	1,600,000 220,000 0	4,6 2.2 0 2
40 P	Estrone	10 mg	25	220 mg.	Slight central fatty degenera- tion, moderate invelopolesis, mature	1 13 19	11,700 36,800 36,200	45 45 56	10 23 26	0 4 6	6,480 5,900 3,810	13 6 12 4 9 7	89 60 (.)	1,320,000 210,000 12,000	16 24 02
5º ð	Diethyl stilbestrol	(Oral) 20 mg	33	600 mg.	Minimal central fatty degeneration; moderate crythropoiesis, minimal myelopoiesis, immature	1 10 21 33	20,250 33,450 65,000 1,050	47 70 44 20	10 24 40 2	0 3 5 0	5,690 5,270 3,940 1,820	14 2 14 6 10 0 4 9	92 94 65 51	970,000 750,000 59,000 14,000	4 4 1 0 0 0 10 0
26 ♂	Diethyl Stilbestroi	(Oral) 20 mg	33	660 mg.	Minimal diffuse fatty degen eration, slight erythropolesis; moderate myelopolesis, immature	1 19 31 32	13,150 42,900 16,350 5,200	42 40 63 46	5 27 13 17	0 7 1 0	5,300 4,930 3,810 3,0%	13 0 10 7 8 0 6 7	81 70 52 45	1,300,000 360,000 38,000 190,000	3 2 0 6 3 0 2 6

that estrone produces results indistinguishable in these respects from those following estradiol or diethylstilbestrol. The livers of animals receiving large doses of estrone or of estradiol benzoate showed definite changes which cannot be distinguished in type or degree from the hepatic changes produced by estrogenically equivalent doses of diethylstilbestrol dipropionate.

It must be emphasized that the doses of the estrogens used in these experiments are approximately twenty-five times as large per unit of body weight as the maximum therapeutic dose usually employed in treating patients. We's have not been able to detect by clinical

estradiol produce hepatic changes indistinguishable from those produced by diethylstilbestrol.

## SUMMARY

Large doses of the "natural" estrogens estrone and estradiol benzoate produce changes in the liver, bone marrow and peripheral blood of dogs indistinguishable from those produced by the synthetic estrogen diethylstilbestrol. Hepatic changes following estrogenically equivalent doses of the three estrogens consisted of fatty degeneration and hydropic degeneration. In general, alterations in the parenchymal cells were not widespread or prominent. Since these changes occurred before the appearance of any hemorrhagic state, they were presumably the result of direct action on the liver. Extramedullary my elopoiesis occurred within the livers of animals receiving these estrogens.

⁸ MacBryde, C. M., Freedman, Harold, Loeffel, Ellen, and Castro dale, Dante The Synthetic Estrogen Stilbestrol Clinical and Experimental Studies, J. A. M. A. 115: 440-443 (Aug. 10) 1940 MacBryde, C. M., Castrodale, Dante, Loeffel, Ellen, and Freedman, Harold The Synthetic Estrogen Dieth/Istilbestrol Clinical and Experimental Studies: II, and 117: 1240-1242 (Oct. 11) 1941.

# VERTIGO DUE TO OBSTRUCTION OF THE EUSTACHIAN TUBES

A CLINICAL STUDY BASED ON ONE HUNDRED AND THIRTY-FIVE CASES

> F. W. MERICA, M.D. LAKEWOOD, OHIO

Vertigo caused by obstruction of the custachian tubes is a distinct clinical entity which has received but scant attention both in the literature and in practice. own experience in the treatment of 135 cases of this type has proved that many patients suffer unnecessarily the distressing symptoms of vertigo, nausea and vomiting, sometimes for long periods, because their physicians fail to recognize the cause and to institute the simple procedure of mechanical inflation of the eustachian tubes which would bring them relief.

The reason these cases are so consistently overlooked probably is that they are seen usually by the medical man or general practitioner, who is likely to think in terms of disturbances in the digestive, circulatory or nervous systems and hence to ignore the possibility that violent symptoms of dizziness, nausea and vomiting may be attributable to stenosis of the eustachian tubes.

Most of the references to vertigo of this type in the literature have been made in general discussions on vertigo due to various causes, but a number of authors, including Atkinson,1 Baumoel,2 Brand,3 Scott,4 Mollison 5 and Richev.6 have listed eustachian obstruction or stenosis as one of the principal causes of vertigo. It is true, of course, that there are many other conditions which may cause vertigo, but since obstruction of the eustachian tube is one of the most obvious, and also the most easily corrected, every patient with symptoms of dizziness and nausea should be subjected to the therapeutic test of inflation of the tubes as a first step in a thorough clinical investigation. This procedure should be carried out only by an otolaryngologist who is skilled in the passing of eustachian catheters and bougies.

# GENERAL CONSIDERATIONS

My records of the past few years include 135 cases of vertigo relieved by inflation of the eustachian tubes. In this series of patients 34 per cent were men and 66 per cent were women. Approximately half of the group were between 40 and 60 years of age. Eighty per cent were between 30 and 70, and the remaining 20 per cent were young or extremely aged.

The obstruction or stenosis of the eustachian tubes was associated with acute or chronic inflammation of the nasal sinuses or ears in a large proportion of cases. The condition was associated with head colds in 15 instances. Fifteen patients complained of a feeling of fulness in the ears, along with the vertigo. Tinnitus accompanied the vertigo in 53 instances, and 39 patients had some reduction of hearing. In 7 of these the dis-

turbance in hearing was temporary. Only 2 patients had discharging ears. Tonsillitis was present in 2 cases. One case was associated with alcoholism.

The duration of the vertigo was variable. In some cases the symptoms had been present only a few days; in others, weeks, months and even years.

### SYMPTOMS

Many of the patients in this series had been under treatment for long periods and had gone to numerous physicians to seek relief from nausea, poor appetite, so-called bilious attacks, constipation, nervousness and many other symptoms, which usually had been ascribed to digestive disturbances. I have seen 2 or 3 patients who had histories quite typical of peptic ulcer and had been under observation and treatment for this condition. with no relief. Later their distressing symptoms were completely controlled by reestablishment of the patency of the eustachian tubes.

The cases of insidious onset are the ones most likely to be overlooked. In these instances, because the gastrointestinal symptoms are predominant, the patients are likely to be subjected to various types of treatment over long periods for diseases of the digestive system.

When the onset of the symptoms of nausea and vertigo is sudden and severe, the diagnosis is more easily established, and, if the proper treatment is instituted promptly, the relief is striking and dramatic.

A typical instance in which the onset was sudden was that of a young physician, previously in good health, who was extremely dizzy and severely nauscated one morning as he attempted to get out of bed. He lay back in bed and found that every time he moved or tried to raise his head he was overcome by extreme nausea to the point of vomiting. He became alarmed about his condition and called Dr. James T. Ledman, who recognized the trouble and suggested that he come to my office for treatment. (Dr. Ledman is an internist who has frequently made the diagnosis in this series and has referred the patients to me for treatment.)

Because the patient was suffering from such extreme nausea, it was 12:30 before he could get to my office. He came in, assisted by his wife, carrying a large towel and an emesis basin. He was walking with his legs far apart and holding on to the wall. He was extremely pale and was perspiring profusely. After he was assisted to the chair, a catheter was passed into the eustachian tubes; this was followed by a bougie, and then slight air inflation. Only the right eustachian tube was obstructed, and when this was opened the patient moved his head from side to side and stared in amazement as he announced "Why, my dizziness is gone!" He rose from the chair immediately, stood up, turned a few times, and walked around the room, shaking his head from side to side, and still could elicit no vertigo. Then he said suddenly "I have a call to make at 12:30—I can still get there." And he rushed from the room.

There have been many other instances just as dramatic as this one. In fact, the physician who was the patient in the foregoing instance was responsible for referring the following patient, and this shows that the results can be just as striking when the symptoms have been present for a long period.

The patient was a man past 60 who had a moderate hypertension. He had been confined to his bed for six weeks because of vertigo and had difficulty at times

^{1.} Atkinson, E. M.: Aural Vertigo, New York State J. Med. 37: 555 (March 15) 1937.
2. Baumoel, Siegfried: The Clinical Interpretation of Vertigo, Ohio State M. J. 26: 33 (Jan.) 1930.
3. Brand, G. B.: Aural Vertigo, J. Laryng. & Otol. 52: 756 (Nov.) 1937.

^{4.} Scott, Sydney: Observations on Vertigo, Practitioner 136: 302

⁽March) 1936.
5. Mollison, W. M.: The Operative Treatment of Vertigo, Guy's Hosp.
5. Mollison, W. M.: The Operative Treatment of Vertigo, Guy's Hosp.
6. Richey, deW. G.: Vertigo, West Virginia M. J. 33: 389 (Sept.)
6. Richey, deW. G.: Vertigo, West Virginia M. J. 33: 389 (Sept.)

in retaining his food, because the effort of trying to sit up and eat frequently caused severe vomiting. Hence his physician asked me to go to his home, to carry out the treatment. A eustachian catheter, and then a bougie were passed, and the middle ear was inflated with a hand bulb. The right tube was patent, but the left was closed, and after it was opened the patient raised his head and said "My dizziness is gone!" Whereupon he got out of bed and walked around the room unassisted. This occurred three months ago, and the patient has had no recurrence of the dizziness since.

In some cases the onset of symptoms is fleeting. The patient may awake some morning and, in attempting to turn over in bed, notice a transitory dizziness. If he attempts to get out of bed suddenly, an attack of severe vertigo may ensue, so that he may have to steady himself or be assisted to keep from falling. Frequently in such instances, if the patient gets to his feet and stands still for a few moments with his eyes closed, the dizziness disappears, and then, with some care, he is able to go about his daily routine. Sudden change of position, such as stooping, however, may bring on the vertigo for several minutes. As the day goes on, the symptoms become less pronounced and the patient may be comparatively free from trouble during the day. For this reason a patient with this type of history does not seek relief until the condition becomes worse and he is incapacitated by it.

### RECURRENCES

Although some patients in this series have apparently received permanent relief from only one inflation of the eustachian tubes, there have been many who had a recurrence of the same symptoms, which were again relieved by inflation of the eustachian tube. These recurrent attacks may be associated with acute head colds or exacerbations of a catarrhal condition or some irritation of the mucous membranes such as that caused by excessive smoking.

In some cases, in which the condition has progressed gradually over a long period, dilation of the eustachian tubes at regular intervals has proved necessary. Some patients have been treated regularly for two years or more. As an example, I have in mind a patient who was past 70 years of age. For a time he came in at regular intervals and was thus able to carry on his business and go to his office routinely. However, if he lapsed in his routine of treatment he would wake up a few mornings later to find that he was unable to get out of bed and would start vomiting severely. On several occasions it was necessary for me to go to his home to carry out the treatment. I have been called to his home and found him in a darkened room, flat on his back with ice cloths over his eyes, and any movement or attempt to talk would bring on severe retching. Yet after treatment he would be out of bed, dressed and on his way to his office within half an hour.

#### TREATMENT

As already indicated, the treatment consists in passing a catheter into the eustachian tube and then a bougie, followed by inflation with air. When this procedure is carried out with care and caution there is no danger of rupture of the tympanic membrane or trauma to the eustachian tubes. I have used the procedure thousands of times without ill effects of any kind.

Although the immediate aim in these cases is to establish the patency of the eustachian tube at once—

and this must be done by the mechanical procedure outlined—it is also important to maintain the patency of the tube. In some cases this can be achieved only by repeated inflations, but in others a thorough investigation may reveal some underlying difficulty that can be corrected. Chronic sinus infections, chronic tonsillitis and ear infections may be causing or contributing to the obstruction of the eustachian tubes, and, if present, the proper measures should be taken to eradicate them

Allergy is a factor in some of these cases, and the patency of the eustachian tubes can be maintained by removal of the offending allergen. As has been noted, 1 case in the series was associated with alcoholism. Many patients have experienced great improvement by moderation or elimination of smoking. Abstinence from tobacco is always advisable in these cases.

It is also worth while to investigate the basal metabolic rate of patients with recurrent vertigo due to eustachian obstruction. A significant number have a low metabolic rate, and the patency of the eustachian tubes is improved or maintained when thyroid is administered.

#### COMMENT

Although my purpose in this presentation is to discuss the clinical manifestations and treatment of obstruction of the eustachian tubes, a word may be added concerning the probable mechanism by which the symptoms are produced. It seems obvious that obstruction of the eustachian tube somehow disturbs the air pressure and causes stimulation of the perilymph, which interferes with normal balance as maintained by the labyrinthine mechanism.

Vertigo is caused in most cases, and perhaps in all, by unilateral custachian obstruction. The obstruction was recorded as bilateral in approximately one third of the cases I have observed, but it may be that the pressure disturbance in these cases was unequal on the two sides. In another third of the cases the obstruction was unilateral, and in the remaining third one side was more completely obstructed, or the obstruction occurred on alternate sides in different attacks and hence could be regarded as unilateral. Scott ' noted in the examination of aviators during the war that when it was found that both eustachian tubes were inefficient and both tympanic membranes were compressed inward there was deafness without vertigo but that when only one eustachian tube was obstructed vertigo was prominent, owing to heterogeneous stimuli. Richey 6 noted similar observations on pilots who had attacks of vertigo and nausea, after high flying, due to unilateral obstruction of the eustachian tube.

I have made an interesting observation in several instances during the treatment of these patients which proves quite conclusively that the vertigo and nausea are the direct result of the eustachian obstruction. In some instances in which there was marked obstruction it has been possible to reproduce severe attacks of vertigo during inflation, and these have been relieved promptly by passing a bougie to allow air to escape from the middle ear and thereby to relieve the increased pressure produced by inflation. From this it would appear that the perilymph is disturbed by abnormal variations in pressure, either increased or decreased.

In many of the cases it has been noted that the staggering is in the direction of the obstructed side, although this has not been invariably true, according

to my observations. At any rate the direction of the gait furnishes a clue as to the side which may be affected.

# SUMMARY

Vertigo caused by obstruction of the eustachian tube is a distinct clinical entity which is often overlooked. An experience in the treatment of 135 cases of this type has proved that distressing symptoms of vertigo, nausea and vomiting, sometimes present for long periods, can be relieved by mechanical inflation of the eustachian tubes. Since obstruction of the eustachian tube is one of the most obvious and also the most easily corrected causes of vertigo, every patient with dizziness and nausea should be subjected to the therapeutic test of inflation of the tubes as a first step in a thorough clinical investigation.

In this series approximately two thirds of the patients were women. Approximately half were between 40 and 60 years of age. The obstruction of the enstachian tubes was associated with acute or chronic inflammation of the nasal sinuses or ears in a large proportion of cases. The duration of the symptoms varied from a day or two to several years.

The symptoms may be of sudden onset or the condition of vertigo may develop gradually and intermittently. In the latter type the true cause of the difficulty is often overlooked and the patients are subjected to a variety of treatments for supposed disorders of the digestive system which yield no benefit.

Some patients are relieved permanently by only one or two inflations of the eustachian tubes; in other cases, the symptoms recur and may again be relieved by reestablishing the patency of the eustachian tube. In addition to the mechanical procedure of inflation, proper treatment of these patients demands attention to chronic sinus infections and chronic tonsillitis, to possible allergic factors and irritants, such as tobacco, and an investigation of the basal metabolic rate.

The vertigo is caused in most instances, and perhaps in all, by unilateral eustachian obstruction or by more complete obstruction on one side than the other. The direction of the gait furnishes a clue to the side which may be affected, for in most of the cases the staggering is in the direction of the obstructed side.

14805 Detroit Avenue.

Energy Metabolism.—Accurate measurements by means of the calorimeter have shown that the average total metabolism of a man sitting still is about 100 calories per hour; while the same man working actively increases his metabolism up to about 300 calories per hour; and a well trained man working at his maximum capacity metabolizes material enough to liberate 600 calories per hour, i. e. his metabolism may be six times as active during the hours actually spent in such work as when he is at rest. If during twenty-four hours a man works as hard as this for eight hours and spends two hours in such light exercise as going to and from work, his food requirement for the day will be somewhat over 6,000 calories, or three times the maintenance requirement. Thus, work may increase the day's metabolism as much as 200 per cent, whereas liberal feeding at the end of a fast was found to increase the metabolism only 22.5 per cent, or one ninth as much. Only a few exceptional occupations, such as that of lumbermen, for example, involve such heavy work as to cause a metabolism of 6,000 calories per day. More often the man who works eight hours a day at manual labor will increase his metabolism by 1,000 to 2,000 calories above what is needed for maintenance at rest, making his total food requirement 3,000 to 4,000 calories.—Sherman, Henry C.: Chemistry of Food and Nutrition, New York, Macmillan Company, 1941.

# APPENDICAL PERITONITIS

EXPERIMENTAL AND CLINICAL INVESTIGATIONS
INTO THE CAUSES OF THE HIGH
MORTALITY

J. O. BOWER, M.D.

L. A. TERZIAN, Sc.D.

J. C. BURNS, M.D.

H. B. TRACHTENBERG, M.D.

A. E. PEARCE, M.D.

The most effective means of reducing the high mortality of appendical peritonitis is the prevention of perforation of the acutely inflamed appendix by teaching the public the dangers of taking laxatives and delaying hospitalization in the presence of abdominal pain. These investigations have already been reported under the prophylactic aspect of the Philadelphia plan.

The scientific aspect presented here includes experimental and clinical research to develop an improved management of patients suffering with spreading peritonitis and to provide continuous research toward further improvement.

The dog has proved to be well adapted for experimental investigations because:

Peritonitis similar to that observed complicating acute appendicitis in man can be induced in the dog by ligating the mesentery and the base of the appendix and administering castor oil immediately after operation.¹

Gross tissue reactions in the dog following the induction of gangrene of the appendix are similar to those observed in gangrenous appendicitis in man.

Changes in the cellular content and chemical composition of the blood and peritoneal exudate preceding rupture and development of the localizing or spreading process are similar in man and dog.

Symptoms and signs accompanying micro-organismal invasion of the peritoneal cavity are likewise similar in the two species.

Recovery from spreading peritonitis in man is preceded or accompanied by the development of an abscess. The dog that recovers from induced spreading peritonitis also develops an abscess which is absorbed.

Death occurs in both man and dog because the reactive capacity of their tissues to the micro-organismal invasion is inadequate.

As these similarities were recognized, the practicability of using the reactions in the dog to measure the value of different methods of management of appendical peritonitis in man became evident. Variables are few. The incidence and mortality of peritonitis in dogs could be varied by withholding or changing the time of administration or the amount of laxatives following ligation of the appendix; without administration of a laxative, 50 per cent of the dogs recovered after an appendical abscess had developed; when 30 cc. of castor oil was given twenty-four hours after operation 68 per cent died; when 60 cc. of castor oil was given immediately after operation 91 per cent died.

Of the patients admitted to hospitals in Pennsylvania with a diagnosis of acute appendicitis or appendical peritonitis. 3,427 had not received laxatives and only 1 in 62 died; 5,868 had taken one laxative and 1 in 19 died; 921 had taken more than one and 1 in 9 died.

From the Foundation for Chincal and Surgital Research and the Philadelphia General Hospital.

The authors received assistance from Dr. J. H. Clark, Chief of Laborators, and J. G. Reinhold, Ph.D., of the Philadelphia General Host in L. Boweet, J. O.; Burns, J. C., and Menale, H. A.: Induced Speed in Personius Complicating Acute Perforative Appendicutes, Surg., Optical Codes 1947-951 (June) 1938.

Man and dog react similarly to surgical procedures instituted in the presence of localizing or spreading peritonitis. Dogs invariably die soon after operations performed during the active stages of an induced peritonitis, and death occurs earlier and more frequently in man when removal or attempted removal of the appendix is instituted before the peritoneal infection becomes localized.2

Likewise, the investigations of agents for combating the toxemia of spreading peritonitis showed that those which produced the lowest mortality in dogs reduced the mortality in man in the same degree when the method of administration and dose were the same.3

Of the 180 dogs treated for induced peritonitis, the lowest mortality was obtained in the group treated with lyophilized serum obtained from the blood of dogs recovered from spreading peritonitis.1 A group of patients treated identically with lyophilized convalescent peritonitis serum showed a decided improvement over any other form of treatment. That the cellular elements of the blood played little or no part in their improvement is shown by the fact that dogs with spreading peritonitis treated with direct transfusions of whole blood showed no improvement. In fact, in one such group the mortality was even higher than in the untreated group.3

We had used lyophilized convalescent peritonitis serum from 1935 to 1940, at which time we changed to lyophilized plasma in the treatment of spreading peritonitis in man, thereby eliminating delay and technical difficulties. It can be given immediately after the diagnosis has been made. Pooling diminishes reactions, and we have kept ampules of plasma at room temperature as long as fifteen months. Mahoney,4 Bond and

TABLE 1 .- Physiologic Responses of Man and Dog with Similar Pathologic Conditions

Of Ma	Pathologic Condition n		Total Protein	Albumin	Albumin/ Globulin	Chloride
B. S.	Acute catarrhal appendicitis	Blood Peritoneal exudate	7.5 5.7	5.2 4.1	2.2 2.5	
E. K.	Appendix gangre- nous, serous coat intact	Blood Peritoneal exudate	7.0 6.3	4.5 4.5	1.8 2.3	575 545
V. K.	Spreading perito- nitis, perforating duodenal ulcer	Blood Peritoneal exudate	6.6 3.8	3.7 2.4	1.3 1,7	605 645
Of Dog	g					
No. 39	Appendix gangre- nous, localizing process	Blood Peritoneal exudate	7.1 6,2	4.1 3.8	$\frac{1.4}{1.6}$	670 655
No. 93	Appendix gangre- nous, localizing process	Blood Peritoneal exudate	7.7 7.0	4.2 4.2	1,2 1,5	620 620

Wright, Strumia, Wagner and Monaghan and Levinson, Neuwelt and Necheles have reported the therapeutic use of preserved plasma in the treatment of shock and infections.

2. Bower, J. O.: Clinical and Surgical Aspects of Spreading Peritonitis Complicating Acute Perforative Appendicitis, Minnesota Med. 23: 755 (Nov.) 1940.
3. Bower, J. O.; Burns, J. C., and Mengle, H. A.: Spreading Peritonitis Complicating Acute Perforative Appendicitis, Experimental Studies, Arch. Surg. 37: 751-759 (Nov.) 1938.
4. Mahoney, E. B.: A Study of Experimental and Clinical Shock with Special Reference to Its Treatment by the Intravenous Injection of Preserved Plasma, Ann. Surg. 105: 178 (Aug.) 1938.
5. Bond, D. D., and Wright, D. G.: Treatment of Hemorrhage and Traumatic Shock by the Intravenous Use of Lyophile Serum, Ann. Surg. 107: 500 (April) 1938.
6. Strumia, M. M.; Wagner, J. A., and Monaghan, J. F.: The Intravenous Use of Serum and Plasma, Fresh and Preserved, Ann. Surg. 111: 623 (April) 1940.
7. Levinson, S. O.; Netwelt, Frank, and Necheles, Heinrich: Human Serum as a Blood Substitute in the Treatment of Hemorrhage and Shock, J. A. M. A. 114: 455 (Feb. 10) 1940

Following the intramuscular injection of lyophilized convalescent peritonitis serum we observed that intestinal peristalsis occurred earlier than with any of our previous forms of treatment. Later, however, when lyophilized convalescent plasma was given intravenously

Table 2.—Observations in a Case of Appendical Peritonitis

\$ 5/27/41 5/28/41		est tration	15.52 15.52	so Protein		or Afbumín	9.1. Albumin/ 9.2. Globulin	occ Chlorides	Se Carbon
5/27/41	Memoglobin	000,038,c	2. 99 Leukorytes	o Myclocytes	o Juveniles	32 Stub Cells	S. Segmented	el Lympho. s² cyfes	& T. Polymors phonucleurs

peristalsis returned even earlier and, in addition, its return was followed by the spontaneous evacuation of intestinal contents, occasionally at the end of eight and not infrequently within twenty-four hours after administration. Investigations by one of the members of our group to determine the cause of this early return of intestinal tonus showed that peritonitis induced in the dog by the method described is followed by a loss of plasma and blood volume with attendant loss of plasma protein and electrolyte. Dependent on the degree of loss of plasma there is an early increase in the concentration of the cellular elements of the blood. Fluid present in the peritoneal cavity contains large amounts of plasma protein and accounts for most of the loss of plasma. The most acute changes occur within twentyfour to seventy-two hours after operation. Following this critical stage of the infection there is an extended period of anemia.

In man, changes almost identical with those observed in the dog occur in the blood and the composition of the peritoneal exudate in perforative appendicitis and in the localizing process s-early appendical rupture quarantined by fibrinous plaques or mesentery, or loops of intestine cemented together with plastic exudate.

Table 1 shows not only the similarity of these changes but that pathologic changes of similar character in both man and dog evoke similar physiologic responses.

In patient E. K., with gangrene of the appendix, and in dogs 39 and 93, the total protein and albumin contents in the blood and peritoneal exudate were almost identical. In both dogs the process had gone one step further than in patient E. K.—the serous coat of the appendix had perforated but the process had been walled off with omentum and loops of intestine cemented together with plastic exudate—the localizing process.

The concentration of the cellular elements and the chemical changes in the blood and peritoneal exudate in the dog have been studied in detail and reported.9

Hemoconcentration with associated changes in the plasma protein is observed early in appendical peritonitis and is illustrated by the following:

J. M., a man aged 28, admitted with symptoms and signs of spreading peritonitis of seventy-two hours' duration, had a temperature of 103 F., a pulse rate of 106 and a respiratory

^{8.} Bower, J. O.: A Clinical Pathologic Classification of Acute Appendicitis and Peritonitis Complicating Perforative Appendicitis, Am. J. Surg. 45: 66-71 (July) 1939.
9. Bower, J. O.; Terzian, L. A., and Pearce, A. E.: Changes in the Blood and the Composition of the Peritoneal Exudate in Induced Spreading Peritonitis, Arch. Surg., to be published.

rate of 28. Perioration had occurred four hours before admis-Despite septicemia produced by Escherichia coli, the patient recovered following the administration of 1,750 cc. of lyophilized peritonitis plasma.

### COMMENT

The blood changes occurring in acute appendicitis and appendical peritonitis in man and dog are similar to those observed in shock. Blalock,10 in his investigation of the relationship of the local loss of fluid and low blood pressure, showed that the protein content of the fluid which accumulated and escaped through the wall of the intestine of dogs, accompanying shock induced by intestinal trauma, was practically identical with plasma. Patients suffering with the shock syndrome here described present a somewhat different picture from that which surgeons encounter in the terminal stages of a spreading peritonitis. Increased permeability of capillaries is a common accompaniment of shock and escape of fluids from damaged capillaries can be readily understood. Nerve impulses are believed by O'Shaughnessy and Slome 11 to play an important part in the causation of shock. The passage of fluid into the peritoneal cavity in cases of appendical peritonitis may be the result of absorbed bacterial antigens acting on terminal ganglions.

We have reported the finding of the antitoxin to Clostridium welchi in the peritoneal exudate of a patient operated on for a localizing process. The patient's blood serum also showed the presence of antitoxin to Clostri-

dium welchi.12

We believe that the passage of fluid from the vascular system into the peritoneal cavity in preperforate appendicitis and appendical peritonitis is definitely a protective process. To view it otherwise, one must admit that the absence of peristalsis, the presence of plastic exudate between loops of intestine and omentum cementing them together or of antibodies in the blood stream are not protective. If these deductions are correct, then plasma taken from patients recovered from an attack of appendical peritonitis should have more therapeutic value than plasma taken from normal persons. Soon after we started using lyophilized plasma the full significance of the changes in blood composition became apparent. However, additional clinical and experimental investigations will be necessary to determine the relative therapeutic value of lyophilized convalescent peritonitis plasma as compared with lyophilized normal plasma. The following deductions regarding the results of our clinical experience with lyophilized convalescent peritonitis plasma to date may be helpful to those interested in this problem:

# INDICATIONS AND CONTRAINDICATIONS FOR THE USE OF LYOPHILIZED CONVALESCENT PERITONITIS PLASMA

Plasma is indicated when a distended, purulent, gangrenous appendix ruptures at operation; when a perforated appendix is unexpectedly found at operation; when a frank spreading peritonitis is present on the patient's admission to the hospital; when an induced spreading peritonitis develops following the search for or removal of an appendix in the presence of a localizing process or an appendical abscess: when spreading peritonitis is induced postoperatively; when peritonitis

develops as a result of ruptured duodenal, stomach or typhoid ulcers, perforation of the gallbladder, intestinal obstruction, salpingitis, abdominal trauma, and like conditions.

The initial amount given intravenously over a period of two hours has been 250 cc., except when an appendix ruptures on removal or for any other reason the patient has been subjected to an extremely large dose of antigen, under which conditions 500 cc. has been given. While the patient's pulse, temperature and the presence or absence of peristalsis are guides to further administration of plasma, protein determinations are also necessary and should be made ten hours after each dose. If symptomatic improvement does not occur, the dose should be repeated at twelve hour intervals until there is improvement. If there is no change in total protein and an improvement of symptoms continues, plasma is

In addition to plasma, the Fowler position, absolutely nothing by mouth, the parenteral administration of dextrose in saline solution or distilled water, depending on the level of plasma chloride, and morphine hypodermically are advised. Drugs that stimulate peristalsis should not be given at any time. Blood transfusions should not be given during the first forty-eight hours because of early hemoconcentration. Laboratory work will indicate later requirements.

Plasma is contraindicated for patients coming to operation with an unruptured appendix unless symptoms and signs of a peritonitis develop; for moribund patients unless the physician in charge believes that this type of patient should be "given a chance." Then a small blood transfusion is advised and, if the patient reacts, plasma may be administered, alternating with small transfusions. Facilities should be available for protein and hematocrit determinations.

OBSERVATIONS ON THE RESULTS OF THE ADMINIS-TRATION OF LYOPHILIZED CONVALESCENT PERITONITIS PLASMA

We have not observed as decided a psychic improvement from the administration of any agent in peritonitis as that which follows the intravenous injection of convalescent peritonitis plasma. We mention this first because in our experience it has been the initial change -patients voluntarily comment on how much better they feel. Restlessness and mental irritability diminish or disappear and delirium rarely develops.

Reduction in pulse rate and a drop in temperature are usually gradual in the case of severe involvement but not infrequently precipitous in the case of moderately severe involvement. In a previously silent abdomen peristaltic sounds have been heard as early as eight hours. Rigidity has diminished concomitantly in the quadrants in which peristalsis has returned.

We cannot state definitely the part that antibodies play in the improvement in symptoms and signs noted. The accurate replacement of fluids and electrolytes in quantities that approach as nearly as possible the patient's requirements is extremely important.

## SUMMARY

Induced peritonitis in the dog produces tissue and body fluid changes similar to those observed in cases of appendical peritonitis in man, making possible the evaluation of agents used to combat the toxemia.

Preperiorative appendicitis and appendical peritonitis in man and induced peritonitis in dogs show blood and body fluid changes similar to those observed in cases of shock.

^{10.} Blalock, Alfred: Trauma to Intestines: Importance of Local Lose of Fluid in Production of Low Blood Pressure, Arch. Surg. 22; 314 (Feb.) 1931.

11. O'Shaughnessy, Laurence, and Slome, David: Etiology of Traumatic Shock. Brit. J. Surg. 22: 589 (Jan.) 1935.

12. Bower, J. O.: Spreading Peritonitis Complicating Acute Perforative Appendicatis: Routine Operations versus Scientific Management, J. A. M. A. 112: 11-17 (Jan.) 1939.

The intravenous administration of lyophilized convalescent peritonitis plasma is advised in the treatment

of patients suffering with appendical peritonitis.

The best management of these patients or of patients suffering with peritonitis from any cause can be carried out only with the aid of a competent clinical biochemist, on whose determinations the institution of therapy in great part depends.

Blood transfusions should be replaced by infusion of

human plasma in the early stages of peritonitis.

The convalescent stage of peritonitis is accompanied

by hypoproteinemia and anemia.

Lyophilized convalescent peritonitis pooled plasma makes immediate administration possible and diminishes the likelihood of reactions, and the lyophilization does not affect the specific antibody content of plasma.

### CONCLUSION

A prophylactic plan for the reduction of the mortality of appendical peritonitis, which has proved workable in Pennsylvania, has been presented; we here suggest to surgeons a plan of management of this disease the rationale of which we believe to be sound.

# NOSE DROP CONTAMINATION IN DROPPER BOTTLES

JOHN L. GOMPERTZ, M.D.

AND
PAUL MICHAEL, M.D.
OAKLAND, CALIF.

What lurks in dropper bottles besides nose drops has long been a subject of discussion. By "dropper bottle" is meant the standard type of dropper attached, screw capped bottle wherein the dropper hangs submerged in the solution. The patient purchases a dropper bottle of solution of one of the common vasoconstrictors, treats his cold, then puts the bottle away in the family medicine cabinet. It is brought out thereafter when any member of the household has a stuffy nose. The dropper is inserted into the offending nostrils and is then put back into the bottle. Usually the dropper has been inserted well into the nostrils; therefore the questions arise of nose drops being a possible source of transmission of infection from one member of the family to another and of a future "cold" being complicated by the use of nose drops contaminated from a previous "cold."

Most persons would not think of borrowing another person's toothbrush, but perhaps nose drops in dropper bottles are cleaner than toothbrushes and won't support living bacteria. Therefore the following examinations of the contents of dropper bottles were made in the

clinical laboratories of Peralta Hospital.

Eight unused, regularly prescribed dropper bottles of solutions for intranasal use were obtained from the hospital pharmacy (table 1). All solutions contained a preservative in small amount or were rich in aromatics. All were cultured aerobically and anaerobically and no growth appeared at the end of ninety-six hours. Fresh unused samples were then inoculated with twenty-four hour broth subcultures of Staphylococcus aureus hemolyticus and no growth appeared at the end of ninety-six hours, even after a second inoculation. Then rabbit blood-agar plates were inoculated with broth cultures of the same organism and four hours later, before a visible growth had occurred, the plates were

flooded with the solutions from dropper bottles. At the end of twenty-four hours a luxurious growth of Staphylococcus aureus appeared almost equal to the control plates that were not flooded with the solutions.

Thus it would appear that vasoconstrictor solutions in dropper bottles are probably sterile as dispensed by the pharmacist. Such solutions resist bacterial growth either by slight inhibition or by failure to provide sufficient nutrient material. As no bactericidal effect was demonstrated, lack of nutrient material is the more likely. Bacteriostatic effects were almost negligible.

Contents of dropper bottles known to have been used by one or more persons for at least one week were now examined. Nineteen samples were collected from as many medicine chests. Seven of these were commercial ephedrine solutions; twelve were of neosynephrin. All contained a preservative or aromatics. All yielded bac-

terial growth on culture (table 2).

Apparently repeated passage of the dropper from nostril to solution had succeeded in each instance in establishing bacterial growth. The explanation might be the addition of mucus, pus and débris to the solution as nutrient material, or it might be that bacteria continued to live within the added particles out of reach of the slight concentration of antiseptic in the surrounding solution.

As significant as any of these observations, however, and with the additional importance of probably supplying one answer to the problem, was the following:

Six samples from bottles containing physiologic solution of ephedrine without any antiseptic or dropper but with plain screw caps showed no bacterial growth on culture. These were bottles from separate medicine cabinets, and in all instances the contents had been partly used. But in no instance had a dropper been

Table 1.—Composition and Result of Culture of Unused Stock Solutions of Nose Drops as Dispensed

No.	Vasocon- strictor Agent	Vehicle	Preservative	Aromatics	Organism Found in Culture
1	Ephedrine 1%	Oil	Merthiolate 1:5,000	Oil of thyme, camphor, menthol	None
2	Ephedrine 1%	On	None	Camphor, menthol, woo turpentine, of of cucalyptus cedar leaf, thymol, meth salicylate	I •
3	Ephedrine 1%	Aqueous dextrose	Merthiolate 1:5,000	None	None
4	Neosynephrin 0.25%	Aqueous	Sodium ben- zonte 0.1%	None	None
5	Neosynephrin 0.25%	Aqueous	Sodium ben- zoate 0.1%	None	None
6	Neosynephrin 0.23%	Aqueous	Sodium ben- zonte 0.1%	None	None
7	Neosyaephrin 0.25%	Aqueous	Sodium ben- zaate 0.1%	None	None
8	Ephedrine 1%	Aqueous devirose	Metaphen 1:5,000	None	None

introduced into the bottle. In all instances portions had been removed only by unscrewing the cap, pouring out an amount needed for treatment and replacing the cap.

## COMMENT

The question of sterility of solutions for intranasal use is important and there is an answer. The answer does not lie in avoiding the issue by the use of stronger

antiseptics. It lies in sterile solutions correctly dispensed and correctly used. Nor can medical practice make one grand effortless leap from the era of antisepsis to a new era of asepsis. Such change requires appropriate increases in education, instruction and care.

Table 2.—Composition of Nose Drops Examined and Organisms
Found on Culture*

==			maa on Ca	· · · · · · · · · · · · · · · · · · ·	•
N	Vasocon strictor o Agent	Vehicle	Preserva tive	Aromatics	Organism Found in Culture
1	Ephedime 1%	Oil	Merthiolate 1.5,000	Oil of thyme, camphor, menthol	Staphylocaccus albus
2	Fphedrine 1%	Aqueous devtrose	Merthiolate 1:5,000	Present, not itemized	Streptococcus viridans, Staphylococcus albus
3	Ephedrine 1%	Aqueous devtrose	Mertinolate 1 5,000	Present, not itemized	Hemoly tic Staphylococcus aureus
4	Ephedrine 1%	Aqueous dextrose	Merthiolate 1 5,000	Present, not itemized	Hemoly tie Staphylococcus aureus
5	Ephedrine 1%	Aqueous dextrose	Chlorobuta- nol 0 5%	Menthol	Staphylococcus albus, Strepto coccus gamma, Montha albi cans, M catar rhalis
6	Fphedrine 1%	Od	None	Camphor, menthol, wood turpentine, oil of euca lyptus, cedar lenf, thymol, methyl salicylate	Hemolytic Staphylococcus aureus, Streptococcus gamma
7	Ephedrine 1%	Aqueous dextrose	Metaphen 1 5,000	None	Stuphylococeus aureus
8	Neosy nephrin 0 25%	Aqueous	Sodium ben zoate 0 1%	Eucaly ptol, menthol	Hemolytic Staphylococcus aureus
9	Neosynephrin 0 25%	Aqueous	Sodium ben zoate 0 1%	Encaly ptol, menthol	Hemoly tie Staphylococcus aureus
10	Neosynephrin 0 25%	Aqueous	Sodium ben 200te 0 1%	Eucalyptol, menthol	Hemolytu Staphylococcus aureus
11	Neosy nephrin 0.25%	Aqueous	Sodium ben zonte 0 1%	Encalyptol, menthol	Hemolytic Staphylococcus aureus
12	Neosynephrin 0 25%	Aqueous	Sodium ben 20ate 0 1%	Eucaly ptol, menthol	Hemolytic Staphylococcus aureus
13	Neosynephrin 0 25%	Aqueous	Sodium ben 20ste 0 1%	Eucalyptol, menthol	Hemolytic Staphylococcus aureus
14	Neosynephrin 0.23%	Aqueous	Sodium ben zoate 0 1%	Eucalvptol, menthol	Hemolytic Staphylococcus aureus
15	Neosynephrin 0 25%	Aqueous	Sodium ben zonte 0 1%		Hemoly tie Staphylocoecus aureus
16	Neosynephrin 0 25%	Aqueous	Sodium ben zoate 0 1%	menthol	Hemolytic Staphylococcus aureus
17	Neosy nephrin 0.25%	Aqueous	Sodium ben zonte 0 1%	menthol	Hemolytie Staphylococcus aureus
18	Neosynephrin 0 25%	Aqueous	Sodium ben zonte 0 1%	menthol	Hemoly tre Stapos lococcus aureus
19	Neosynephrin 025%	Aqueous	Sodium ben zonte 0 1%	menthol	Hemoly tie Staphylocorcus aureus

^{*} All of these solutions were used at least one neek

Perhaps it does not make any difference to a person if he repeatedly uses his contaminated nose drops during that particular infection. But in his next cold the complicating organism may be a different one and the instillation of the first type of bacteria on a weakened mucous membrane may add to the patient's complications.

Staphylococci themselves may not cause actual disease of the upper respiratory tract if the mucous membrane is healthy; however, staphylococci may complicate another type of infection by synergistic action. The presence of staphylococci in nose drops may also indicate other contamination such as virus. No study was made of the possibility of virus growth in nose drops in this investigation. Surely it is a possibility that should not be overlooked.

In the series of samples tested, there were various preservatives and antiseptics used. These did not prevent bacteria from living in the nose drops. If a sufficient concentration of preservative or antiseptic was added to keep the drops sterile, the drops would be urntating and harmful to the mucous membrane of the nose.

The main purpose of this paper is to condemn two practices that are widespread among the public and are at times fostered unintentionally by physicians. These are (1) the use by a patient of some one else's dropper bottle of nose drops and (2) the use by a patient of dropper bottle nose drops that he has used during a previous infection of the upper respiratory tract.

In order to avoid the complications of these practices, the physician should educate his patients to do one of two things: If they insist on buying dropper bottles of solution, they should buy very small ones, allow no one else to use them and throw them away at the conclusion of their current infection.

However, the safer and better method is to buy sterile nose drops containing no antiseptic, in a plain screw cap bottle. Instruction is given to pour out the amount needed for treatment and replace the screw cap at once, never pour anything back into the original bottle and never put a dropper or anything else into it. This is the practice advocated by Parkinson.

Even with the few instances involved in this investigation, certain conclusions can be drawn that are highly significant in relation to present customs of dispensing and using vasoconstrictor solutions for intranasal application.

### SUMMARY

- 1. Fresh nose drops as they are dispensed are probably sterile.
- 2. The usual content of preservative or antiseptic is insufficient to maintain sterility in the face of repeated contamination.
- 3. Many popular intranasal vasoconstrictor solutions have no bactericidal effect on Staphylococcus aureus hemolyticus.
- 4. Repeated contamination of nose drops results in their supporting living bacteria. This probably is due to the addition of mucus and other débris from the nose.
- 5. The use of contaminated dropper bottle contents by others, or in subsequent colds, is not without risk.
- 6. Since sufficient antiseptic to insure sterility under circumstances of repeated contamination would make a solution unfit for intranasal use, owing to discomfort and mucosal irritation and damage, the way to progress would seem to be toward solutions prepared, sold and used in such manner as to avoid contamination.

426 Seventeenth Street.

^{1.} Parkinson, S. N. Preparation of a Physiologic Setution for National Treatment, Arch. Otolaryng. 32:959 (No.) 1940

# THE GRID FOR EVALUATING PHYSI-CAL FITNESS (WETZEL)

APPLICATION TO CHILDREN WITH ABNORMAL BODILY DIMENSIONS

# HILDE BRUCH, M.D. BALTIMORE

In a recent publication Wetzel 1 described a new method for evaluating physical fitness which permits the estimate of different aspects of the physical prog-ress of a child from infancy to maturity. The assessment is based on the use of a grid and demands only three simple routine measurements, namely height, weight and age. Wetzel enumerates eight different items which may be determined from the grid: physique (body build), developmental level, nutritional grade, physical status, relative advancement or retardation, maturation, basal heat production and daily caloric intake. The technic is described in detail in the original publication and will not be repeated in this paper. The different aspects are explained by illustrative examples. Yet no examples are given which show the interrelation of the different aspects in the same individual, specifically not in individuals with abnormal bodily dimensions.

The present report is intended to illustrate the application of the grid to children in whom one or more of the basic measurements is distorted. Since in this department records of more than 200 obese children, with relevant measurements, are available, the discussion will concern itself chiefly with findings in obese children. Cases of pronounced undernutrition and of retardation or acceleration of statural growth are included for contrast. The value of the method for recognition of abnormal physical status and for evaluation of therapeutic results could be confirmed. However, some limitations of the method, which were not clarified in the original report, have been observed. For simplification the eight aspects recorded by Wetzel will be discussed under three different headings: (1) height-weight relationship (including physique, nutritional grade and physical status), (2) developmental achievement (including developmental level, relative age advancement or retardation and maturation) and (3) basal metabolism (basal heat production and daily caloric intake).

### HEIGHT-WEIGHT RELATIONSHIP

The construction of the grid permits the recording of height and weight by a single point. The area of normal progress is divided into several channels. If subsequent measurements follow the course of one of the established channels it may be concluded that the child is healthy and is progressing normally. The body build of a child determines the particular channel along which his growth line progresses. Abnormal increase in weight expresses itself in an upward trend of the line, or deviation toward the left. Malnutrition is indicated by a lowering of the line, or a bending toward the right side of the grid. Wetzel describes extensively the usefulness of the grid for the early detection of developing obesity or malnutrition. value of the new method could be fully confirmed in

From the Department of Pediatries, Columbia University College of Physicians and Surgeons.

1. Wetzel, N. C.: Physical Fitness in Terms of Physique, Development and Basal Metabolism, J. A. M. A. 116: 1187 (March 22) 1941.

a large group of children with abnormal nutritional The graphic registration on the grid appears to be of particular value in detecting sudden changes in the height-weight relationship and will thus lead to an early investigation of the disturbing factors.

By plotting a number of cases which had been followed for several years, the value of the grid for a quick evaluation of the result of treatment could be demonstrated. Since obesity generally requires longcontinued supervision and since a certain increase in weight is to be expected in a growing child, the appraisal of the progress of an obese child is sometimes difficult. It is only in the decidedly overweight child that actual reduction of weight is indicated. In less severe cases it may be sufficient to keep the weight stationary or even to allow a slight increase in weight. By transferring the figures to the grid, one can readily recognize whether or not a child is outgrowing his obesity. A slope of the line smaller than the slope of the grid indicates satisfactory progress and improvement of the condition. A parallel curve of the line or a slope larger than that of the grid is an index that the condition is stationary or is becoming worse. The grid thus offers a convenient guide for the evaluation and adjustment of treatment in children with abnormal nutrition.

### DEVELOPMENTAL ACHIEVEMENT

The channels indicating height and weight progress are subdivided by so-called developmental lines. These lines are related to standard schedules of developmental progress ("auxodromes"). Comparison of the developmental level of a subject to the 67 per cent (or normal) auxodrome permits, according to Wetzel, a "simple, entirely objective," way of determining "developmental This measurement is claimed to be comparable to the skeletal age. Wetzel emphasizes that the new method avoids the disadvantages connected with roentgenographic determinations of skeletal age. However, he gives no figures which demonstrate the validity of this claim in children with abnormal bodily dimensions. A comparison of the developmental level, determined from the grid, and of the skeletal age, as measured by the traditional roentgenographic method, must show a good agreement before one is justified in replacing a well established, though tedious, method by a new and simpler one.

The accompanying tables show the result of such a comparison. Table 1 lists observation in 25 obese boys, and table 2 in 20 obese girls. The figures are intended to give the range of variation with regard to age and degree of obesity. The first difficulty in rating the patients according to the grid technic arises from the circumstance that many of the older and decidedly obese children fall outside the range which can be assessed from the grid. There are only 2 girls of more than 9 years who could be included; they were the shortest obese girls of this age period. The values of all other obese girls of more than 10 years fell above the developmental line 147, which is the highest value which may be related to the 67 per cent or normal auxodrome. Many of the older boys had also to be rejected because their height and weight gave them a developmental level above 170, which is approximately the highest value which can be expressed as develop-

In tables 1 and 2 are recorded the age, height and weight of the children together with their skeletal age. The assessment of the skeletal age was made from

roentgenograms of the hands and wrists according to the standards of Todd.2

The "developmental age" was assessed according to Wetzel's description as the age that corresponds to the 67 per cent auxodrome. "Height age" was similarly determined by plotting the height in the median channel and referring it from there to the 67 per cent auxodrome. The figures for height age enclosed in parenthesis have

than twice the value of the observed skeletal age. The discrepancies between the different determinations is illustrated in chart 1. The abscissa refers to the chronologic age, the ordinate refers to height age, skeletal age and developmental age, each of which is plotted above the chronologic age for each child. The 45 degree line indicates equality between chronologic age and the determined growth achievement. The majority of

TABLE 1 .- Obese Boys

						Cale	ulations from '	Wetzel's Grid	Difference
Number  1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 24 25	Initials RSBGSCLDASKLBRGCHHBFBCDP.H. RXCHTJXRLCHTJWF.SDLWHAL	Age Yr Mo  1 6 2 3 2 11 3 6 3 9 4 10 5 10 6 5 6 8 7 7 8 3 8 6 9 6 9 8 9 9 10 1 10 6 11 7 13 5	Height, Inches  J5  J8  J9  J2  J19  J4  J19  J4  J5  J5  J5  J5  J5  J5  J5  J5  J5	Weight, Pounds  54 51 47 50 53 74 62 63 74 88 76 81 80 84 102 118 96 106 97 120 95 148	Skeletal Age  Yr Mo  1 9 2 9 3 0 4 3 3 5 9 6 0 5 9 7 0 0 8 0 9 9 9 9 9 9 9 9 10 9 9 9 9 9 11 3 12 3 12 3 14 3	Per Cent Over- Weight 80 50 537 32 43 44 43 45 35 37 40 69 49 37 56 20 20 40 33 26 48 48 48 74 17	Height Age  Yr Mo. (2 2) (3 1) (4 8) (4 8) (4 6) 7 9 6 10 8 2 7 7 7 8 2 10 9 12 4 11 0 12 3 9 6 12 0 12 0 12 0 12 0 12 8 14 0	Developmental Age  Age  1r Mo  7 2 7 2 6 8 7 3 7 7 10 10 9 1 9 3 10 9 12 6 11 2 10 9 11 5 11 5 12 6 14 4 13 2 14 8 13 9 14 8 15 9 14 8 16 6 18 6 17 6	(Development Minus / Height)  Vr Mo  5 0 4 1 2 11 2 11 2 7 3 1 3 1 2 3 2 7 4 8 0 7 6 4 10 3 3 3 1 1 6 1 0 2 0 0 2 2 1 3 8 2 8 4 0 0 10 5 6

TABLE 2 .- Obese Guls

						Calculations from Wetzel's Grid			Difference
Number	Initials	Age Yr Mo	Height, Inches	Weight, Pounds	Skeletal Age Yr. Mo	Per Cent Over weight	Height Age Yr Mo.	Developmental Age Yr Mo	(Development Minus Height) Yr Mo
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A Y E E E E E E E E E E E E E E E E E E	2 .9 2 9 2 9 3 5 5 6 5 5 5 5 6 6 6 6 7 7 7 7 8 8 8 10	37¼ 39½ 41½ 39¾ 45¼ 45¼ 47 48½ 47 48½ 50¼ 50¼ 50 48½	33 49 49 60 51 75 97 56 73 81 67 113 95 103 104 97	2 3 3 3 3 3 4 6 3 3 5 5 3 5 6 6 6 7 7 6 6 9 9 9 9 9 9 9 8 8 9 9 8 6 9	61 40 44 87 46 88 115 57 45 44 40 40 45 67 31	(3 0) (3 9) (3 10) 6 9 6 2 5 10 8 9 7 6 0 9 9 11 3 10 8 8 10 8 10 8 10	7 6 7 2 7 0 9 8 7 3 10 9 12 6 8 2 10 6 11 7 9 6 11 9 12 8 11 4 11 6	4 6 5 5 6 4 8 6 4 9 5 9 9 2 10 2 9 0 5 11 2 11 2 11 2 11 2 1 1 1 2 2 4
19 20	J. F. B. F	9 7 10 6	52 52	105 97	12 3	67 37	9 6	13 6 12 6	4 0 3 0

been assessed from the height charts of Burgess 8 because the values fell below the range of the 67 per cent auxodrome. "Per cent overweight" refers to the difference between observed weight and expected weight, the latter being taken as the weight which, according to the grid, corresponds to the height in the median channel.

A glance at tables 1 and 2 shows that little agreement exists between the "skeletal age," according to the roentgenographic method, and the "developmental age," according to the grid. In all instances the developmental age gives a much higher value, sometimes more

2. Todd, T. W.: Atlas of Skeletal Maturation, St. Louis, C. V. Mosby Company, 1937.

3. Burgess, M. A.: Construction of Two Height Charts, J. Am. Statist A 32: 290, 1937.

values fall above this line, indicating accelerated physical development in obese children. The values for height and skeletal age fall generally within two or three years of the chronologic age. The height development is on the average somewhat more accelerated than the skeletal maturation. But the two values fall within the same zone, indicating a proportional acceleration of development in obese children.

The values for "developmental age" calculated according to the grid lie well above the values for height and skeletal development and are out of proportion with the actual biologic development of the child. The discrepancy is the more pronounced the higher the per-

^{4.} Bruch, Hilde. Physical Growth and Development of Obese Cl 4 dren, J. Am Die, Child 58: 457 (Sept.) 1939.

centage of overweight. The dependence of the excessively high value for developmental age on the weight excess is illustrated in chart 2. On this chart the percentage overweight is plotted against the difference between developmental age and height age. The direct relationship between the excessively high value

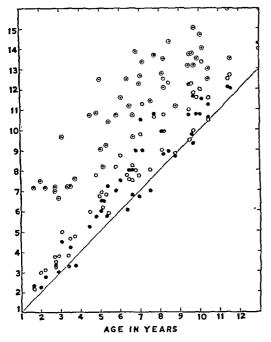


Chart 1.—Relation between chronologic age, skeletal maturation and "developmental age" (Wetzel) in obese children: The abscissa indicates chronologic age in years, the ordinate the achievement in different growth phases. The 45 degree line indicates equality (normal development) between chronologic and achievement age. Skeletal age is represented by solid dots, height age by open circles, and developmental age by circles with a center dot.

for developmental age and the excessive weight is obvious. The deviation from the height age, and not the skeletal age, was chosen for comparison because both the height and the developmental age, and also the weight excess, were calculated from Wetzel's grid. These three values are therefore directly comparable. The deviation from the skeletal age would show somewhat higher values; yet the relationship to the weight excess would be very similar.

Further observations were made in nonobese children with other distortions in height or weight development. They are presented in table 3. Cases 1 and 2 represent 2 tall and thin children, both of whom have a normal skeletal age. The rating on the grid gave them too low a developmental age. In the third case (table 2) the height development is so excessive that it compensates for the low weight and leads to too high a value for developmental age. This child also has a normal skeletal age.

Two abnormally short patients are presented as cases 4 and 5. In these patients the height-weight relationship is normal; therefore the height age and developmental age from the grid show good agreement. Yet the skeletal age was in 1 case below and in the other above the value assessed from the grid.

Finally, figures are given for 2 girls with hypothyroidism who had been inadequately treated. Both were short but of stocky body build. In both cases

the rating from the grid gave a developmental age in excess of the actually observed skeletal age.

The examples of tables 1, 2 and 3 were taken at random from a large group of children with some abnormal bodily dimension, who had been extensively studied. In no case did the "developmental age" according to the grid agree with the assessment of the skeletal age, according to the roentgenologic determination. The "developmental age," distorted by the inclusion of the abnormal dimension, gives too high or too low a value. Wetzel's claim that the "developmental age" may serve the same purpose as the skeletal age could not be verified in these 52 children. Yet it is in children of this type that the correct assessment of the developmental achievement is of diagnostic and prognostic importance.

Many of the children in tables 1, 2 and 3 have been followed for several years. Their subsequent puberal development has confirmed the value of the skeletal age for arriving at a fairly accurate prediction of further development. In none of these cases would the assessment of the "developmental age" have given a reliable prediction about the time of maturity.

### BASAL METABOLISM

The heat production scale of the grid is given in conjunction with the developmental levels. Since the developmental levels were found to be directly influenced by the abnormal bodily dimension, it is obvious that the same must be expected for the prediction of basal metabolism, in contrast to the claim that "the present method offers the encouragement that clinical distinction between normal and abnormal states of metabolism can be made with greater accuracy and less uncertainty than before" and "without correcting for body size, physique or age." This statement may hold true for normal children; it could not be validated for children with abnormal bodily dimensions. The same problems which apply to the use of other standards arise also with the diagnostic application of the new standards.

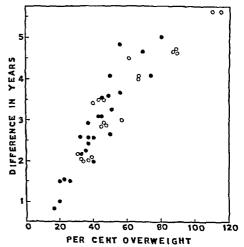


Chart 2.—The relationship between degree of obesity and the excessive value for developmental age: The abscissa indicates the weight excess in percentage, the ordinate the difference between developmental age and height age. All these values were calculated from the grid. Values for hoys are represented by solid dots, for girls by open circles.

In tables 4 and 5 are presented observations on 20 obese boys and 20 obese girls who were chosen at random (with the exception that a number of patients fell outside the given scale). The observed caloric

output is given in comparison to the predictions from Wetzel's new standards and Talbot's weight standards. The correlation coefficient between the two predictions is very high, namely 0.95. Both standards give too high predictions for very young children. There is no reason to suppose that the deviation in these young children is an expression of abnormal metabolism any

standards were observed. The correlation coefficient between the two standards was higher than that between each standard and the observed calories (0.81 and 0.77 respectively). One may conclude that in obese children the abnormal dimension (the excessive weight) enters into the calculation of the basal metabolism and cannot be disregarded.

TABLE 3-Nonobese Children

	Calculations from Weizel - Grid								μÌ		
Number	Initials	Sex	Age Ir Mo	Height, Inches	Weight, Pounds	Skeletal Age Yr Mo	Per Cent Difference in Weight	Height Age Tr Mo	Develop mental Age Yr Mo	Calories	Observal Culoties
1 2 3 4 5 0	R V A H W T B J C M G S C R P.	<i>\$</i>	12 10 12 3 10 3 7 2 13 10 8 2 10 5	60 633, 40½ 54½ 38 42	70 76 85 30 80 40 48	12 12 10 3 6 13 4 5 4 6	-27 -25 -26 0 + 8 +20 +30	13 4 13 6 15 6 5 11 2 3 2 5 3	10 9 11 3 11 8 5 12 5 5 12 6	1,250 1,170 1,230 820 840 935	1, 794 1, "01 1,400 912 578 734

TABLE 4 -- Obese Boys

		Age	Height,	Weight,	Per Cent	Calories	Predicted	Calories	Percentage D	er lation from
Number	Initials	Tr Mo	Cm	Kg	Overweight	Wetzel	Talbot	Observed	Wetzel	Tolbot
3	R P	δ 5	125	29 1	14	1,160	1,130	1,090	- 6	4
ž	PR	5 7	118	34 1	59	1,230	1,230	961	21	21
3	0,0	6 7	128	407	52	1,340	1,350	1,242	- 7	8
4	MN	6 9	126	335	30	1,220	1,200	1,135	7	b
ŝ	LR	6 11	126	30 8	29	1,185	1,155	1,238	+ 5	+ 6
e e	Õ'Ğ	7 5	128	41 2	54	1,345	1,360	1,222	- 9	10
7	HM,	7 10	135	41 0	30	1,340	1,355	1,182	12	17
é	5 8	8 11	132	38.5	30	1,310	1,310	1,310	0	D
0	ĎВ	9 9	131	43 5	30	1,380	1,390	1,235	1}	31
10	J N.	9 11	144	419	15	1,550	1,370	1,590	+ 3	+16
11	ÄL	10 2	138	44 9	33	1,400	1,410	1,392	1	1
	HP	10 6	142	o? 5	62	1,549	1,390	1,452	G	~_ ti
12	HL	10 9	143	34.4	50	1,510	1,560	1,755	+16	+13
13	MM	11 1	155	ર્કેંડે ઉ	17	1,520	1,550	1,608	+ 6	+ 1
14	ST	11 9	166	62.7	12	1,610	1,700	1,590	3	- 0
15		11 9	148	66 4	62	1,630	1,700	1,470	-10	17
16	G T	12 1	131	58 0	37	1,530	1,600	1,555	0	- 3
17	J P	12 6	150	5 Sc	25	1,500	1,30	1,370	- 9	10
18	SS		150	55 0	31	1,520	1,505	1,638	+ 1	2
19 20	S R C P	12 7 13 2	347	67 2	70	1,630	1,760	1,635	0	- 7

TABLE 5 .- Obese Girls

		<u> </u>				Calories	Predicted	T. Indiana	ercentage De	lation from
Number  1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Initials SMGAGMGGBGBBCCGFFBKHF GCAGMGCBEACCAGIBBRMF	Age Yr Mo 4 5 5 10 7 12 7 5 8 6 8 7 8 9 2 2 8 3 0 9 6 6 9 7 7 10 6 8 11 4 4 11 1 9	Height, Cm  114 113 128 1.2 12.5 127 130 131 131 131 147 140 142 144 144 144 144 144 1550 146	Weight, Kg 251 241 250 441 250 471 377 377 377 480 441 660 4466 4466 4466 449 790	Per Cent Overweight 44 28 94 40 50 27 30 27 24 29 55 46 11 24 24 25 14 42 24 35 14	Wetzel 1,055 990 1,320 1,230 1,100 1,200 1,100 1,200 1,210 1,210 1,220 1,220 1,230 1,230 1,230 1,331 1,250 1,335 1,330 1,330 1,340 1,340 1,345 1,350 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340	Talbot 1,636 945 1,400 1,265 1,295 1,740 1,200 1,200 1,205 1,370 1,310 1,533 1,435 1,435 1,340 1,300 1,465 1,370 1,370	Galories Observed 818 800 1,478 1,400 1,104 1,110 1,110 1,275 1,410 1,276 1,416 1,276 1,416 1,276 1,417 1,276 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,417 1,41	Tretzel -20 -17 +12 +14 -7 -8 -8 +0 -3 +11 -9 +11 +8 +5 +2 -3 -2	Tallot -15 -9 +1 -12 +4 -8 +7 -7 -7 -7 -7 -7 -7

more than to conclude that the agreement in the older children between the observed calories and both Wetzel's and Talbot's weight standards is necessarily an expression of normal metabolism. Wetzel's standards gave a slightly better result in an unusually tall boy (case 10, table 4) and in a rather short but very heavy boy (case 16, table 4). No other conspicuous differences between the predictions from these two

In the very thin (cases 1, 2 and 3, table 3) and very short (case 4, table 3) children the prediction from Wetzel's standards gave lower values than were actually observed (last two columns in table 3). Here again the abnormal bodily dimension enters into the assessment and no diagnostic interpretation can be given to this difference.

In the 2 hypothyroid patients (cases 6 and 7, table 3) the prediction from the grid was higher than the observed calories. In these 2 patients the interpretation

⁵ Talbot, F. B. Basal Metabolism Standards for Children, Am J Dis Child 35: 455 (March) 1938

of the observed metabolism as "low" may be justified but only because the retarded skeletal age (supported by the clinical history and other findings) points to hypothyroidism as the underlying disturbance. The assessment of the "developmental level" from the grid, which was found to be higher than the height age, would not have permitted this diagnostic conclusion. The other customary standards give also a low rating in these children with true hypothyroidism.

# SUMMARY AND CONCLUSION

- 1. The grid for evaluating physical fitness (Wetzel) was applied to 52 children with abnormal bodily dimen-The usefulness of the new method for the graphic recording and early recognition of abnormal changes in the height-weight relationship could be con-The grid appears to be of value for the appraisal of therapeutic results.
- 2. The relative advancement or retardation of statural growth ("height age") can be readily assessed with the aid of the auxodromes.
- 3. The assessment of the "developmental age" from the combined height and weight value was found to show no agreement, in any instance, with the roentgenographically determined skeletal age. observation has proved the skeletal age to be fairly reliable for the prediction of the future development and maturation.
- 4. The deviation of the "developmental age" could be directly related to the abnormal physical dimension. The assessment of the "developmental age" from the grid leads to an unreliable prediction of maturation.
- 5. Since the standards for basal metabolism predictable from grid readings are alined to the developmental levels the same limitations apply to them. They also are influenced by the abnormal bodily dimension and should not be used for the assessment of abnormal metabolic states without correction for and consideration of the abnormal dimension.
- 6. It was considered necessary to point out the limitations of the new method in order to bring into clearer relief the true usefulness of the method. It is to be expected that the application of the grid in public health work, school examinations and so on will render valuable service in screening out children with abnormal body proportions and disturbances in developmental progress. For the diagnosis, however, of the underlying disturbance in such children, and for the prediction of future development and maturity, the assessment of "developmental age" and also of basal metabolism from the grid offers only unreliable information.

Johns Hopkins Hospital,

Insurance Against Misuse of Science.-It is a stimulating challenge to have others say that there is too much science in the world. It is my opinion that we have too little of the scientific spirit in those who use the discoveries of science! We create machines and they are allowed to exploit people. Every tool and machine should have a tag attached as when a mechanic finishes greasing your car at the garage. The tag should say that you last looked at the social effects of the tool three months or three years ago and that it is time to have another look. Society should require insurance against misuse -for everything that science is and means is wrapped up in its effect on men. Human beings are at the center of it all. Not the thousand and one laboratories and "things" that science produces but rather their social effects are what concern us.-Bowman, Isaiah: Enduring Purpose, Assn. Am. Coll. Bull. 26:195 (May) 1940.

# FATAL PULMONARY EMBOLISM FOLLOWING VARICOSE VEIN INTECTION

REPORT OF A CASE AND REVIEW OF THE LITERATURE

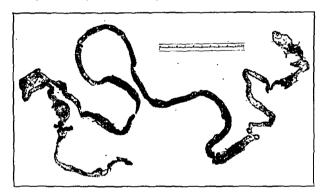
ARKELL M. VAUGHN, M.D. AND

WILLIAM M. LEES, M.D.

First Lieutepant; Associate Clinical Professor of Surgery and Clinical Assistant in Surgery, Respectively, Loyola University School of Medicine

#### CHICAGO

Within the past two decades the obliteration of varicose veins by the injection of sclerosing solutions has become an accepted form of treatment. This may be associated, however, with a certain amount of danger. regardless of the fact that it is being and has been employed daily in the treatment of thousands of patients with no resulting serious complications. Serious reactions to the injection of sodium morrhuate have been encountered by Lewis,1 Dale2 and McCastor,3 as noted in a previous publication by one of us.4



Pulmonary embolus from the left common iliac vein.

In the case reported, death was proved to be due to pulmonary embolism. While this is undoubtedly the most serious complication to be feared, it is possible that allergy to sodium morrhuate plays a role in some of the reactions observed. This could conceivably be related to an acquired sensitivity from the previous administration of cod liver oil. For this reason it is important to question the patient concerning asthma, hav fever or other manifestations of allergic predispositions, as well as concerning previous sodium morrhuate injections. In addition to this a sensitivity test with sodium morrhuate should be made or a small initial injection given.

Our aim in this paper is to show that a fatal complication may occur unless certain precautions are taken. The case report and a review of the fatal cases reported by other clinicians may help to prevent this tragic sequel to a popular method of treatment. It is probable that more fatal cases have occurred but have not been reported.

From the Department of Surgery, Mercy Hospital and Loyola University School of Medicine.

1. Lewis, Kenneth M.: Anaphylaxis Due to Sodium Morrhuate, J. A. M. A. 107: 1298 (Oct. 17) 1936.

2. Dale, Maurice L.: Reaction Due to Injection of Sodium Morrhuate, J. A. M. A. 108: 718 (Feb. 27) 1937.

3. McCastor, J. T. N., and McCastor, Mary C.: Reaction to Sodium Morrhuate Injections for Varicose Veins and Hydrocele, J. A. M. A. 109: 1799 (Nov. 27) 1937.

4. Vaughn, Arkell M.: Varicose Veins, Illinois M. J. 78: 137, 1940.

# REPORT OF CASE

Miss J. T., aged 65, was admitted to the outpatient department of the Mercy Hospital Free Dispensary on March 24, 1936 with a history of varicose ulcers on the left leg and swelling of the left ankle for the past five weeks. The present illness dates back to 1926, at which time she was hospitalized for five weeks because of ulcers of the left leg which evidently

rate 88, the respiratory rate 18 and the blood pressure 140 systolic and 95 diastolic. General physical examination was negative except for a soft, moderately low pitched, apical systolic murmur. The essential pathologic condition was a shallow, tender ulceration the size of a 25 cent piece (24 mm.) over the anterior part of the tibia at the junction of the middle and lower thirds of the left leg, which oozed serum and pus and

Table 1.—Reported Cases of Fatal Pulmonary Embolism Following the Injection Treatment of Varicose Veins

					711011		irituat 1 tina
No.	Author	Year	Solution Used	Amoun	Ambulatory;		Time After
1	Hohlbaum 5	1922				Result	Injection
-	2.0010HdH - 211111111111111111111111111111111111	1922	Pregl's isotonic iodine solution	80 cc.	*********	Died	14 days
2	Linser: München, med. Wehnschr. 71:	1924	Sodium chloride		A sumband of a succ		
	418, 1924	*0~1	Botham Chioriae	*****	Ambulatory	Died	14 days
3	Hirsch and Nobl: Wien, klin, Wchnschr,	1926	Dextrose 60%		Bedridden following	Died	42 days
	39:1310 1926		,,		hemorrhoidectomy	Diet	as anys
4 5	Lomholt: Ugesk. f. læger 89:7, 1927	1927	Sodium chloride 20%	25 cc.	*****************	Died	28 days
ы	Olson 6	1927	Sodium chloride 25%	50 cc.	Ambulatory	Died	10 days
6	Kühnau; Zentraibl. f. Chir. 56: 2580, 1927	1927	Dextrose 50% Calorose	40 cc.	4 5 2 4		
ž	Levai: Monatschr. f. ungar. Med. 1:201.	1927	Calorose		Ambulatory	Died	5 days
	1927	2021	***************************************		****************	Died	
8	Schoenhoff, cited by Lomholt: Ugesk. f. læger 89: 718, 1927	1937	Sodium chloride 15%		Bedridden following	Died	28 days
9	læger 89:718, 1927		_		bemorrhoidectomy		
9	von Eiseiderg, cited by Moszkowicz: Wien.	1927	Sugar solution		Bedridden from	Died	10 days
	med. Wehnschr. 77:46, 1927				excision and liga-		
10	Faure, cited by Vigyago: Zentralbl f.	1928	*******	,	tion of varicose veins	Died	
	Faure, cited by Vigyazo: Zentralbl. f. Chir. 55:70, 1928	1040	***************************************	•••••	***************************************	Dicu	
11	McPheeters and Rice 7	1928	Sodium chloride 20%	90 cc.	Bedridden following	Died	20 days
					excision and liga-		•
	*****	****	~		tion of vein		
12	Kilbourne 10	1929	Sodium salicylate	• • • • • •	Ambulatory; massage of thrombosed vein	Died	42 days
13	Anschutz-Lohr: Zentralbl, f. Chir. 56:	1929	Sodium chloride 20%	15 ee.	or thrombosed tem	Died	
10	3211, 1929	1040	Countin Chieffue 2076	10	*** * ******	Dicu	
14	Anschutz-Lohr; Zentralbl. f. Chir. 56:	1929	Sodium chloride 25%	25 ec.	Bedridden	Died	10 days
	3211, 1929						* .
	0.1 1.1. A 011. WW-440.	****	0 - 31 3-1 - 1.7 - 0.001	•••••	Bedridden following	Died	Few days
15	Ochlecker: Zentralbl. f. Chir. 57:1122,	1930	Sodium chloride 20%		vein ligation		
10	1930 Silverman ^p	1931	Sodium chloride 25%	25 ec.	Bedridden with	Died	10 days
16	Suverman	1001	Coolain emoliae 2070		thrombophlebitis		
17	Horn and Foged: Mitt. a. d. Grenzgeb. d.	1931	Inversal, varicosmon	Total		Died	15 minutes
	Med. u. Chir. 42:17, 1931			57 cc.;			nfter last injection
				7 injec. in			mjection
	man a man a mana Manada dala	1931	Calorose 60%	5 wks.		Died	
18	Federhen: Ztschr. f. med. Beamte 44:	1931	Catorose 60%	• • • • • • • • • • • • • • • • • • • •			
19	289, 1931  Pahring: Syangka life stid 29: 457, 1932	1932	Quinine, urethane			Died	
20	Behring: Svenska läktid. 29:457, 1932 Matas: Ann. Surg. 96:691, 1932 Spilsbury: J. A. M. A. 98:1754, 1932	1932	Quinine, urethane			Died Died	
21	Spilsbury: J. A. M. A. 98: 1754, 1932	1932	Sodium salicylate			Died	
21 22	Spilsbury: J. A. M. A. 98: 1754, 1932	1932	Sodium salicylate	*****		Died	
23	Spilsbury: J. A. M. A. 98: 1754, 1932 Spilsbury: J. A. M. A. 98: 1754, 1932 Spilsbury: J. A. M. A. 89: 1754, 1932	1932 1932	Sodium morrhuate	*****	Bedridden	Died	7 days; tubular
24	Spilsbury: J. A. M. A. 89:1731, 1932	1334	***************************************				clot in heart
25	Krauss: Zentralbl. f. Chir. 60:2126, 1933	1933	Varicosmon (concen-		Bedridden	Died	21 days after in- jection, 9 days
20	Arauss. Zentinioi. 1. Oint. of the		trated sugar sol.)				after patient
							put to bed
		1934	Invertose		********	Died	14 days
26	Stoner: Am. J. Surg. 25: 148, 1934	1934	Quinine, urethane	•••••	*******	Died	12 days 21 days
27	Westerborn 11	1937	Varison		*******	Died	21 days
28	Westerborn 11 Westerborn 11	1937	Varison	2 ec.		Died Died	2 days
27 28 29 30	Westerborn 11	1937	Quinine, urethane		***************************************	~ // (4	
50		*00=	(varison)			Dled	49 days
31	Westerborn 11	1937 1937	Quinine, urethane Quinine, urethane	3.5 cc.	*******	Died	7 days 10 days
32	Westerborn 11	1937	Onlaine, prethane	4 cc. 2 cc.		Died Died	35 days
33	Westerborn 11 Westerborn 11	1937	Onining prethane	2 cc.		Died	21 days
34		1937	Quinine, urethane	10 cc.		Died	18 days
33 34 35 36 37	Westerborn 22	1937	timmine, irretnine		***************************************	Died	30 days
27	Westerborn 11	1937	Quinine, urethane		Bedridden	Died after	
38 -	Homans 12	1937	********			ligation Died after	
		1937		••••	Bedridden	ligation	
39	Homans 12				Bedridden	Died after	
	Homans 12	1937	*******	• • • • • • •	Deditable	ligation	
40	Homans	1010				Died	
41	Dean and Dulin 13	1940 1940	****************			Died Died	6 weeks
42	Dean and Dulin 13	1941	Sodium morrhuate		Ambulatory	a-1614	
43	Nunn and Harrison: J. A. M. A. 12.			4 cc. in 6 days			or dama after let
	1941		Ou dinn mountainte	Total	Bedridden	Died	31 days after 1st. 8 days after
	Vaughn and Lees	1941	Sodium morrhuate	7.5 cc.;	-		last injection
44	vaugon and more			5 injec. in			, · · · · · · · ·
				23 days			
					<del></del>		

completely healed, and she remained symptom free until five weeks prior to the present hospital admission. Aside from this condition the patient had always been in good health and had been able to carry out her duties as a room cleaner, which involved considerable walking and standing. Her father died of a heart attack, her mother of pulmonary tuberculosis and one brother from a "stroke."

One brother from a stroke.

Physical examination revealed that the patient was fairly well developed but poorly nourished, intelligent, alert and apparently not in any distress. Her temperature was 99.2 F., the pulse

was surrounded by a reddish blue indurated area of skin. Over the popliteal and patellar regions there was a similar area of reddish blue unbroken skin the size of an elm leaf. The veins in the left leg were enlarged and tortuous. Neurologic examination was negative.

Urinalysis and blood counts were within normal limits, and Wassermann and Kahn tests were negative.

Wassermann and Kann tests were negative.

The patient was referred to the Department of Dermatology, where a diagnosis of varicose ulcer and veins was made, and she was then referred to the Department of Surgery for treat-

ment. On March 28, 2 cc. of 5 per cent sodium morrhuate was injected into a varicosed vein just proximal to the ulcer and the ulcer dressed with Peruvian balsam. Evidently the ulcer did not improve and on April 14 she was admitted to Mercy Hospital for further treatment and study.

At this time the patient was kept in bed; hot fomentations and a heat cradle were applied. Four injections of 1.5 cc. of 5 per cent sodium morrhuate were given on the 16th, 17th, 18th and 20th of April, all being given in the varicosed vein just above the ulcer. After the last injection the ulcer was noted to be healing rapidly. At 6 a. m. on April 28, after sleeping six hours, the patient suddenly became dyspneic and lost consciousness; her pulse was of poor quality and the respiratory rate became slow. A considerable degree of cyanosis developed, and the skin became moist and cold. One ampule of caffeine with sodium benzoate was given without effect, and respirations ceased fifteen minutes after the onset of the attack.

A total of 7.5 cc. of a 5 per cent solution of sodium morrhuate had been given, and death occurred thirty-one days after the first and eight days after the last injection.

Autopsy by Dr. Eustace L. Benjamin revealed essentially a 4 by 4.5 cm, granulating wound on the mesial aspect of the left shin about the middle third. The surrounding skin was indurated and brown red to gray red. The posterior aspect

#### COMMENT

The first case of fatal pulmonary embolism following the injection of sclerosing solutions for the treatment of varicose vein was reported in 1922 by Hohlbaum.5 The first American author to report a fatal case was Olson 6 in 1927. A comprehensive review of the literature on this subject was first attempted by McPheeters and Rice? in 1928. These authors, after a careful search of the European and American literature, found 4 diagnosed cases of fatal pulmonary embolism in a total of 53,000 cases of varicose veins treated by injec-In 1931 Kettel^s reviewed 60,000 cases and reported ten deaths in addition to those reported by McPheeters and Rice. After careful analysis of these deaths, however, only one can be attributed to the present day recognized technic of injection treatment. Silverman or reviewed the literature carefully up to 1931 and found a total of seventeen deaths and added one of his own, making a total of eighteen deaths. His search also revealed 3 nonfatal cases of pulmonary embolism following injection treatment. The literature was brought up to date in 1934 by Kilbourne,10 who

TABLE 2 .- Reported Cases of Nonfatal Pulmonary Embolism Following Injection Treatment of Varicose Veins

No.	Author	Year 1926	Solution Used	Amount	Ambulatory; Bedridden	Result Recovered
1	Redner, cited by Nobl: Wien, med. Wchn- schr. 76: 1280, 1926				Bedridden	Recovered
2	Keller: Zentralbl. f. Chir. 56: 3213, 1929 Burton: U. S. Vet. Bur. Med. Bull. 6:	1929 1930	Sodium chloride 20% Quinine preparation		Ambulatory	Recovered
-	854, 1930		•		Bedridden from	Recovered
4	Binzel, cited by Liebholz: Med. Welt. 4:507, 1930	1930	***************************************	• • • • • • • • • • • • • • • • • • • •	phlebitis	
5	de Takats, Geza: J. A. M. A. 96:1111, 1931	1931		•••••	Bedridden following appendectomy	Recovered
6	Probstein: J. Missouri M. A. 33: 349, 1936	1936	Sodium salicylate 30%	5 cc.	Ambulatory	Recovered
7	Probstein: J. Missouri M. A. 33: 349, 1936	1936	Sodium morrhuate	0.5 cc.	Ambulatory	Recovered
8	Probstein: J. Missouri M. A. 33: 349, 1936	1936	Sodium salicylate 40%	10 cc.	Ambulatory	Recovered
9	Taylor; Am. J. Surg. 45: 145, 1939	1939	Sodium morrhuate 5%	10 ec. in middle ¼ of thigh	1	decovered after liga- tion of saphenous, femoral, external iliac yeins successively
10	Smith: Mil. Surgeon 85: 514, 1939	1939	Sodium morrhuate 5%	2-4 cc. daily		Recovered
11	Smith: Mil. Surgeon 85:514, 1939	1939	Sodium morrhuate 5%	2-4 cc. daily		Recovered
12	Smith: Mil. Surgeon 85:514, 1939	1939	Sodium morrhuate 5%	2-4 cc. daily		Recovered
13	Smith: Mil. Surgeon 85:514, 1939	1939	Sodium morrhuate 5%	2-4 cc. daily		Recovered
14	Smith: Mil. Surgeon 85:514, 1939	1939	Sodium morrhuate 5%	2-4 cc. daily		Recovered
15	Smith: Mil. Surgeon 85:514, 1939	1939	Sodium morrhuate 5%	2-4 cc. daily	• • • • • • • • • • • • • • • • • • • •	Recovered
16 17	Smith: Mil. Surgeon 85:514, 1939	1939	Sodium morrhuate 5%	2-4 cc. daily	•••••	Recovered
14	Smith: Mil. Surgeon 85:514, 1939	1939	Sodium morrhuate 5%	2-4 cc. daily		Recovered

of the thigh and knee was dark reddish brown. Both pleural cavities were completely obliterated by firm fibrous adhesions. There were old adhesions between the pericardial sac and the pleural surfaces and diaphragm, and bilateral chronic adhesive and obliterative pleuritis.

The size of the heart was about normal and the valves were essentially normal. The coronary arteries showed a rather severe sclerosis with 40 to 50 per cent reduction in the patency of the lumens. There was a moderate degree of atherosclerosis at the beginning of the aorta, which increased in degree as the abdominal aorta was reached. The endocardium was fairly smooth throughout. The aortic valve leaflets were slightly sclerotic, with cohesion of their free margins at their point of attachment. The corpora aurantis were hard and slightly enlarged. There was a subepicardial sclerosis (soldiers' spots) on the ventral surface of the right ventricle.

Both main pulmonary arteries and their first division were occluded by coiled emboli. The lungs were dark red to gray and hyperemic. There was moderate coal pigmentation. Pleural surfaces were shaggy as the result of fibrous adhesions. The left common iliac vein was distended with blood; its tributaries deeper in the leg were occluded by antemortem clots. Other organs showed no noteworthy changes.

The pathologic diagnosis was bilateral pulmonary embolism; thrombosis of the veins of the left leg and common iliac vein; bilateral pulmonary hyperemia; generalized arteriosclerosis, especially of the abdominal aorta and of the coronary arteries; fibrous obliteration of the pleural cavities; chronic healing ulcer (varicose) of the left leg.

added 9 cases to those already collected by Silverman. Westerborn 11 in 1937 reviewed the cases in Sweden and reported eleven deaths in 30,000 cases. In the same year Homans,12 reviewing one hundred and sixty-two vein ligations for thrombophlebitis at the Massachusetts General Hospital, reported three deaths from pulmonary embolism. In 1940 Dean and Dulin, 13 reviewing about 600 cases of varicose veins treated by injection at the University Hospitals, State University of Iowa College of Medicine, reported two deaths from pulmonary embolism; they state that in their opinion the danger of embolism is greater than heretofore acknowledged and recommend routine high saphenous vein ligation preceding the injection treatment. Tables 1 and 2 list the reported cases of fatal and nonfatal pulmonary emboli following the injection treatment of varicose veins.

^{5.} Hohlbaum: Zentralbl. f. Chir. 49:218 (Fcb.) 1922.
6. Olson, O. A.: Fatality Following Varicose Vein Injection, J. A. M. A. 89:692 (Aug. 22) 1927.
7. McPheeters, H. O., and Rice, C. O.: Varicose Veins, J. A. M. A. 91:1090 (Oct. 13) 1928.
8. Kettcl, K.: Zentralbl. f. Chir. 58:1498, 1931.
9. Silverman, Isidore: Incidence of Embolism in Treatment of Varicose Veins, J. A. M. A. 97:177 (July 18) 1931.
10. Kilbourne, N. J.: Treatment of Varicose Veins of the Legs, J. A. M. A. 92:1320 (April 20) 1929.
11. Westerborn, A.: Acta chir. Scandinav. 79:321, 1937, 12. Homans, J., in Nelson's Loose-Leaf Surgery 3:748, 1937, 13. Dean, G. O., and Dulin, J. W.: Pulmonary Embolism Following the Injection Treatment of Varicose Veins, J. A. M. A. 114:1344 (April 6) 1940.

### CONCLUSIONS

The injection treatment of varicose veins is not free from complications, which may even be fatal,

Injection of too large amounts of sclerosing solution, as was the vogue in the earlier days of treatment of varicose veins, is dangerous. It is noted from the accompanying tables that 40 to 90 cc. of solution was used in some of the fatal cases. In our opinion, no more than 10 cc. of solution should be injected at any

Injection in the presence of thrombophlebitis is a potential source of an embolus.

"In the injection treatment of varicose veins, proper selection of cases, skilled technic and the complete cooperation of the patient after the injection in continuing routine daily activities will lessen the frequency of pulmonary embolism," 11

### SUMMARY

- 1. An additional case of fatal pulmonary embolism following varicose vein injection was observed.
  - 2. Bedridden patients should not be injected.
- 3. It is important to keep patients ambulatory following the injection treatment of varicose veins.

1180 East Sixty-Third Street.

# Clinical Notes, Suggestions and New Instruments

SALMONELLA SCHOTTMÜLLERI ISOLATED FROM SACROLUMBAR LESION OF TWENTY-FOUR YEARS' DURATION

E. E. ECKER, Ph.D., A. O. KUEHN AND E. W. RECROFT, M.D., CLEVELAND

Since Achard and Bensaude 1 established the etiology of paratyphoid fever in 1896, the causative organism and its related species and types have been isolated in numerous instances from abscesses of widely different tissues. The literature, however, offers only 3 doubtful cases in which an organism of the Salmonella schottmulleri type has been obtained from infections involving the bones.

Achard and Bensaude were the first also to describe a case of purulent arthritis from which this organism was recovered. In 1900 Cushing 2 reported the discovery of a paratyphoid bacillus from a costochondral abscess, and in 1916 Gildemeister 3 isolated a similar organism from a periosteal lesion of the forearm. There is little assurance that the organisms found in these early cases are of the true Schottmüller type. The complex antigenic constitution of this group of organisms was not known and serologic methods of differentiation therefore still were undeveloped.

## REPORT OF CASE

History.-- A white man aged 36 had been admitted to a hospital for one month with high fever of unknown origin when he was 13. At the end of this time severe pains in the right sacrolumbar region prompted an exploratory operation on that side. Negative results and continued pain suggested that the pain originated from the spine, and a body cast was put on. However, after removal of the cast the pain recurred. He was again placed in a cast, and this cast was reduced gradually over a period of six months. With final removal of the cast the pain had completely disappeared.

14. Theis, F. V.: Surg., Gynec. & Obst. 60:996, 1935.

Drs. P. R. Edwards and M. B. Coleman made corroborative examinations of this strain.

From the Institute of Pathology and the University Hospitals, Western Reserve University.

1. Achard. Charles, and Bensaude, Raoul: Bull. et mem. Soc. med. d. hôp. de Paris 13:820, 1896.

2. Cushing, Harvey: Bull. Johns Hopkins Hosp. 11:156, 1900.

3. Gildemeister, E.: Centralbl. f, Bakt. (Abt. I) 78:129, 1916.

From that time on, and up until two years before the present admission, the patient remained well but suffered occasional relapses following any straining of the back. Two years before the present admission the patient was hospitalized for a severe relapse (fever and pain in the back), and again a cast was put on. After removal of this cast, which was worn for eight weeks, a sacrolumbar abscess was uncovered and a culture was taken from the pus, with negative results. The abscess has since opened spontaneously on two occasions and has been aspirated once. Previous to this report, all bacteriologic examinations had given negative results. At the beginning of this year the patient again suffered a relapse and pus was aspirated from the sacrolumbar abscess. The organism recovered will be characterized.

Roentgenologic Examination .- The lesion was found between the fifth lumbar and the first sacral vertebra, involving the end-plates and destroying the intervertebral disks. A large spur was observed on the upper anterior surface of the fifth lumbar vertebral body. The lesion appeared to represent an old infectious spondylitis. An extensive sinus tract was also noted in the left midquadrant, situated retroperitoneally and extending to the subcutaneous tissues of the back but not communicating with either the left kidney or any part of the colon. A possible relationship was believed to exist between the sinus tract and the vertebral lesion, but roentgenologically a communication was not observed between the two processes.

Bacteriologic Examination.-Aspirated pus was inoculated on Endo agar, Wilson-Blair agar, desoxycholate agar, blood agar, Sabouraud's maltose and dextrose agar and Löwenstein's and Petragnani's mediums. At this time pus was injected into the inguinal region of 2 guinea pigs.

From the differential mediums (Endo, Wilson-Blair and desoxycholate agars) a short, thin, motile and gram-negative rod was isolated.

The Sabouraud, Löwenstein and Petragnani mediums showed no growth and at the designated time the guinea pigs failed to show evidence of tuberculosis.

Cultural Characteristics.—On nutrient agar the colonies of the isolated organism compared favorably with colonies of the paratyphoid group. The new strain (Z) failed to produce a slime wall; Schottmüller strains generally produce a slime wall. The Z strain also failed to show raffinose budding.

The Z strain did not produce gas in any of the carbohydrates and alcohols in the early cultures. Only after three months did the transplants show a slight amount of gas.

In general, it can be said that the fermentation reactions of the Z strain, with the exception of its failure to attack glycerin and to produce gas, paralleled the accepted reactions of a true Schottmüller type.

The Z strain decomposed salts of organic acids, namely sodium citrate and levosodium tartrate but not dextrosodium tartrate. It was capable of reducing nitrates. On Bitter's rhammose milk the organism changed the methyl red indicator to yellow. On Rothberger's neutral red agar it brought about at first a fluorescence and later a decoloration of the medium. The Z strain produced hydrogen sulfide.

On the basis of its cultural characteristics, then, the Z strain deviated from that of S. schottmulleri only in the following respects: (1) It did not exhibit a slime wall, (2) it did not produce budding on raffinose agar and (3) it did not attack glycerin.

Serologic Examination,-All agglutination reactions were carried out according to the macroscopic technic of Coleman. It was shown that the X organism agglutinated in an Eberthella typhi immune scrum in dilutions up to 1:40, in a Salmonella paratyphi A immune serum in dilutions up to 1:80 and by an S. schottmülleri immune serum in dilutions up to 1:2,560.

Conversely, agglutination tests were set up with the patient's serum and known organisms. The patient's serum agglutinated the E. typhi O, E. typhi B, S. paratyphi A and S. schottmulleri antigens only to a very slight degree (1:20 to 1:40). However, the patient's scrum, in dilution up to 1:1,280, aughttinated its homologous antigen (Z). The failure of this serum to agglutinate a known S, schottmülleri does not lessen the value of the presumptive test, because in many cases in which S.

schottmülleri organisms have been involved results identical with those observed here have been reported.

Absorption.—Absorption tests were carried out with a diluted immune serum (one-sixty-fourth end titer) in order to eliminate a prozone effect. In every instance the absorption was complete. These tests included the following: (1) The patient's serum was absorbed with S. schottmülleri organisms and the absorbed serum tested with S. schottmülleri as well as with the Z organisms. 2. The patient's serum was absorbed with the Z strain and the absorbed serum tested with the Z organisms. 3. S. schottmulleri immune serum was absorbed with the S. schottmülleri and also with the Z strain, and the absorbed serums were tested with both strains.

The Z organisms absorbed all the agglutinins from the patient's serum as well as from the specific immune serum.

Immune Scrums Made from the Z Strain .- Rabbits were immunized with H and O antigens of the strain. The Z-H antiserum agglutinated its homologous antigen up to a dilution of 1:10,240, while only weak agglutinations were noted when the Z-O antigen was employed. This serum further agglutinated the S. schottmulleri and aertrycke antigens in dilutions up to 1:1,280 and 1:320 respectively. The nonspecific agglutination of the Salmonella aertrycke by the Z-H immune serum is explained by the fact that it shares common antigenic factors with the S. schottmülleri strain.

The immune serums prepared against the Z-O antigens were not as specific as the immune serums prepared against the Z-H antigens, and agglutinations similar to those described for the Z-H immune serums were employed to determine specificity.

The Z-O immune serum, in dilutions up to 1:320, strongly agglutinated its homologous antigen, while at the same dilution it only weakly agglutinated the Z-H antigen.

When Salmonella enteritidis and Salmonella suipestifer organisms are employed with the Z-O immune serums, only questionable agglutinations were observed. However, the Z-O antiserum, in dilutions up to 1:160, agglutinated the S. aertrycke, which shows the close relationship between it and the S. schottmülleri.

Antigenic Analysis.-During the past two decades the serologic differentiation of the Salmonella group advanced rapidly and culminated in the splendid works of White 4 and of Kauffmann.5 From these studies it is known that in many members of the Salmonella group, including the S. schottmülleri, the flagellar (H) antigens are diphasic. In these instances the flagella of the so-called diphasic organisms may assume two alternative forms, namely a specific phase and a group phase. The antigenic components of the specific phase are specific for the particular species or type concerned, or they may be shared by only a few other species or types. The antigenic components of the group phase are, however, shared by many other species or types. A diphasic organism may possess one or both phases. An organism in one phase, although always capable of giving rise to descendants in the alternative phase, usually produces daughter cells having their own particular phase. In any given species or types there may be more than one H antigen (flagellar) in the specific phase. The number of H antigens in the specific phase varies usually from one to four. Generally, several different antigens occur in the group phase, numbering usually from two to four.

In regard to the O antigens (somatic), the majority of species have two components. Some show more than two.

The terminology of Kauffmann was adopted for Salmonella by the Salmonella subcommittee in 1934.

The somatic O antigens are labeled with Roman numerals, while the specific flagellar H antigens are indicated with small letters of the alphabet. However, the numbers of H antigens soon exceeded the letters of the alphabet, and the later additions were given the symbols of Z1, Z2 and so on.

This method of classification is based purely on the antigenic factors, forming no part of the name of any given species or types. The Z strain was then tested with the serums of Dr. Kauffmann and according to the Kauffmann-White schema; the antigenic composition of the organism isolated in this case is as follows: IV,  $V:b \rightarrow 1$ , 2. This corresponds to the structure of S, schottmülleri isolated from pus involving bone and is the first instance in which a complete identification of the organism is offered.6

2085 Adelbert Road.

# Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

## WESTERN ELECTRIC 4C AUDIOMETER ACCEPTABLE

Manufacturer: The Western Electric Company, 300 Central Avenue, Kearny, N. J.

The Western Electric 4C Audiometer is a screening type instrument by which it is possible to test the hearing of as many as forty persons at one time. The firm states that the apparatus is essentially a phonograph to which has been added telephonic apparatus. The phonograph is of the spring motor type with a magnetic reproducer. The magnetic reproducer picks up the vibrations originated by the record and transforms them into electrical vibrations, which are conveyed to a telephone head-set and the person or persons under examination hear the sound waves as if by telephone. All the necessary electrical energy is developed in

the magnetic reproducer.

Intensity of the speech sounds heard on the double faced specially made records decreases in small steps from a maximum to a minimum intensity; this process occurs four times in playing each side of the record. The first two series of numbers on each face are spoken in a woman's voice and the second two in a man's voice. Each decreasing series is composed of different numbers. The same



Western Electric 4C Audiometer.

rate of intensity attenuation is maintained in all eight series. Of the two records provided, one uses two digit numbers and is generally used for classes below the fifth grade; the other, with three digit numbers, is generally used for the fifth grade

The individual being examined writes the numbers heard on a special recording sheet. A master sheet provided makes possible quick checking of the results.

An audiometer of this type cannot be judged in accordance with the requirements in the Council's adopted article "Mimimum Requirements for Acceptable Audiometers." Since it is not a so-called pure tone audiometer, and the manufacturer does not claim it to be such, it is used only for screening purposes and not as a diagnostic instrument and is not accepted as such.

In investigating the instrument clinically a group of students entering college were tested for hearing loss in accordance with directions supplied by the manufacturer. The examination was a routine part of student health activities in a large university.

A group of men students (more than one hundred) was tested in the quietest room in the gymnasium building, and thirty of them were shown to have measurable hearing losses. When they were retested in a sound proofed room in the psychology laboratory, none of the thirty were found to have defective hear-This points out the importance of having a very quiet room in which to conduct the tests.

The Council voted to accept the Western Electric 4C Audiometer for inclusion on its list of accepted devices as a device for assisting in testing the hearing of groups of individuals.

^{4.} White, P. B.: The Salmonella Group, Med. Research Council 4: 86, 1929
5. Kauffmann, F.: Centralbl. f. Bakt. (Abt. I) 119:152 (Dec. 8) 1930; Zentralbl. f. d. ges. Hyg. 25: 273 (Aug. 25) 1931; Commun. de l'Int. sero. l'Etat Danois 28: 177, 1939; Acta path. et microbiol. Scanduay. 17:429, 1940.

^{6.} At the completion of this study, the abscess was again aspirated and the same organism was isolated.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price . . . . . Eight dollars per annum in advance

Please send in promptly notice of change of address, guing both old and new; always state whether the change is temporary or permanent. Such rotice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, APRIL 11, 1942

# THE ATLANTIC CITY SESSION

Last week The Journal published a statement from Undersecretary of War Patterson urging continuation of plans for the annual session of the Association in Atlantic City. Discussion as to the desirability of proceeding with all the plans for the Atlantic City session led officials of the Association to communicate also with the Secretary of the Navy. A letter just received from Commander Edward A. Hayes, special assistant to Secretary Knox, states that Secretary Knox requested him to give the assurance that it is their hope that the proposed annual meeting of the American Medical Association will be a great success. To use the exact expression of Secretary Knox,

"There is no doubt that our defenses along the entire Atlantic Coast will be greatly improved by June and I regard any danger to guests of Atlantic City from that source as insignificant."

As has been stated previously, the special issue devoted to the plans for the Atlantic City session will be The Journal for May 2. The programs are complete. Special symposiums related to problems of current medical interest and to military medicine and the contribution of visitors from some of the Latin American countries are assured. All the exhibit space available in the Scientific Exhibit has long since been assigned and practically all the space in the Technical Exhibits has already been taken.

# CONTROL OF DRUGS AND MEDICAL SUPPLIES

Some of the most complicated and difficult questions confronting various agencies concerned with the most efficient conduct of the war effort have been those concerned with making available to all war agencies proper amounts of essential drugs, chemicals and materials used in medical supplies and at the same time meeting essential civilian needs. Innumerable professional and commercial interests have been involved in these problems. As the problems have arisen, various agencies in the federal government bave

been concerned with various aspects of these questions, so that correlation and coordination have been exceedingly difficult. Recently a preliminary conference was held by the Division of Medical Sciences of the National Research Council, to which a number of representatives of various agencies were called. A second conference, growing naturally from the first, was held in Washington April 3, at which definite action was taken leading to the establishment of a central committee to give consideration to each of the problems as they arise and thus to be able to advise all agencies as to basic facts necessary for the making of competent decisions.

The second conference was called largely as a result of a request received from Mr. J. S. Knowlson, director of the Division of Industry Operation of the War Production Board, who asked for the compilation of a list of drugs now scarce, an estimate as to scarce drugs essential to the national health, and the uses to which such drugs might be applied in order of their importance. It was recognized also that conditions change from day to day and certainly from month to month, so that a continuing body might be necessary and available for constant consultation.

In the conference called by the Division of Medical Sciences, representatives were present not only from the War Production Board, the Office of Price Administration, the Office of Defense Health and Welfare, the Office of Civilian Defense, the Federal Trade Commission, the Division of Medical Sciences of the National Research Council, the Army and Navy medical departments and the Office of Scientific Research and Development but also from the United States Pharmacopeia, the National Formulary, the American Drug Manufacturers Association and the American Medical Association. This conference adopted a motion reading:

That it be recommended to the Division of Medical Sciences of the National Research Council that a representative committee be established to consider and advise on problems of drug and medical supplies and on their distribution; that this committee include liaison representatives from all federal agencies now concerned with this subject; that the committee consider all problems related to the supply of essential drugs and medical supplies with a view to conservation, increased production or substitution and with a view toward coordination and correlation of effort for efficiency in the maintenance of the public health and satisfaction of military needs.

Subsequent to receipt of this action, the chairman of the Division of Medical Sciences, Dr. Lewis H. Weed, appointed a committee and requested each of the federal agencies concerned to designate a liaison representative who will sit constantly with the committee appointed. The Committee on Drugs and Medical Supplies includes:

Dr. Walter W. Palmer, New York, Chairman:

Vice Chairman, Council on Pharmacy and Chemistry, American Medical Association;

American Medicine, Columbia University Medical School.

Dr. Perrin H. Long, Baltimore:

Chairman, Committee on Chemotherapeutic and Other Division of Medical Sciences, National Research Council;

Professor of Preventive Medicine, Johns Hopkins University Medical School;

Member, Committee of Revision, United States Pharma-

Dr. Ernest E. Irons, Chicago:

Formerly member, Council on Pharmacy and Chemistry, American Medical Association;

Secretary, Board of Trustees, American Medical Asso-

Professor of Medicine, Rush Medical College.

Dr. Morris Fishbein, Chicago:

Editor, THE JOURNAL OF THE AMERICAN MEDICAL ASSO-CIATION;

Member, Council on Pharmacy and Chemistry, American Medical Association;

Member, Board of Trustees, United States Pharmacopeia; Chairman, Committee on Information, Division of Medical Sciences, National Research Council.

Mr. J. G. Searle, Chicago:

President, American Drug Manufacturers Association; President, G. D. Searle & Company.

Mr. George W. Merck, Rahway, N. J.: President, Merck & Company, Inc.

Dr. E. F. Kelly, Washington, D. C .:

Chairman, Board of Trustees, United States Pharmacopeia;

Secretary, American Pharmaceutical Association.

Dr. O. H. Perry Pepper, Philadelphia:

Chairman, Committee on Medicine, Division of Medical Sciences, National Research Council, ex officio.

Dr. Evarts Graham, St. Louis:

Chairman, Committee on Surgery, Division of Medical Sciences, National Research Council, ex officio.

The committee proposes to establish subcommittees familiar with the essential information that will be required regarding available supplies of various drugs and medical materials and the means of conserving such materials, of substituting for them and of increasing production as the needs arise.

### THE LONGEVITY OF PHYSICIANS

Physicians always advise their patients how to live longer and better; they themselves often die prematurely of preventable or at least postponable causes. The prevalence of deaths from heart disease, particularly coronary disease, among physicians at relatively early ages has in recent years increased sharply. Coronary disease has come to be known among physicians as "doctors' disease." Doctors favor health supervision without waiting for illness to appear. The National Health Council and the American Medical Association in 1922 declared in favor of periodic health examinations of apparently healthy persons. The American Medical Association has published a manual 1 and a blank 2 in the hope of stimulating medical interest in

Association, single copies 5 cents.

periodic health examinations and several pamphlets 3 intended to interpret the idea to the layman. theless, except for insurance company and industrial periodic examinations, the idea has not become popular.

A new development is the Committee on Longevity, Class of 1900, College of Physicians and Surgeons, New York, which has organized for the purpose of prolonging the lives and improving the health of the one hundred surviving members of the class, which originally numbered one hundred and seventy-five graduates. Already the idea has received much publicity through editorial comments in New York papers. Superficially amusing, but basically significant, is this comment from an editorial in the New York Sun: 4

Laymen whom middle age prompts to think of such things are bound to be interested in the work of the Longevity Committee set up by the Class of 1900 of Columbia College of Physicians and Surgeons. These doctors should be able, if anybody can, to propagate the art of collective good health. Laymen will note with an understanding smile, however, one of the problems the Longevity Committee regularly meets as it conducts a monthly study of reports on physical examinations of the members. It finds that a good many doctors have this much in common with a good many laymen: they neglect their periodic examinations or delay in taking treatment.

If these physicians can stimulate others they may succeed in awakening a more lively interest among practicing physicians in periodic health examinations. At present medical and lay apathy in virtually equal parts explain the failure of the American people to adopt the sound and sensible idea of periodic health examinations as a means toward better and longer life.

# Current Comment

## PERSONNEL FOR THE ARMY AND NAVY MEDICAL DEPARTMENTS

The Procurement and Assignment Service for Physicians, Dentists and Veterinarians has been seriously engaged in clearing the names of physicians, dentists and veterinarians who have volunteered for service with the Army and Navy medical departments or with various other federal agencies. The tremendous demands made on the government printing office have somewhat delayed the printing of the enrolment form and questionnaire. The continuing demand for physicians makes it desirable therefore that physicians under 37 years of age continue to apply for enlistment in the Army and Navy medical departments.

The immediate needs of the Army and Navy medical departments and of the Air Force, as stated in previous issues of THE JOURNAL, will demand during the year 1942 approximately fifteen thousand or sixteen thousand additional physicians. Those now ready to make application need not delay, therefore, in submitting their names at once. Under the heading of Medicine and the War in this issue of The Journal appears an author-

^{1.} Periodic Health Examination: A Manual for Physicians, Chicago, American Medical Association, 25 cents.
2. Periodic Health Examination Blanks, Chicago, American Medical

^{3.} Height-Weight Table for Men and Women, Chicago, American Medical Association, 10 cents. What Is A Health Examination Anyway? by Haven Emerson, 10 cents. If I Keep My Health, by W. W. Bauer, 5 cents. That Annual Check-Up, by A. H. Aaron, 10 cents.

4. New York Sun, July 9, 1941.

ized statement by Rear Admiral Ross T. McIntire, Surgeon General of the United States Navy, indicating how physicians who wish to apply for commissions in the Navy may take action in that regard.

# THE DISTINGUISHED SERVICE MEDAL

The Distinguished Service Medal of the American Medical Association will be presented for the fifth time at the Opening General Meeting during the annual session of the Association in Atlantic City, June 9. This medal was awarded, for the first time, in 1938 to Dr. Rudolph Matas of New Orleans, in 1939 to Dr. James B. Herrick of Chicago, in 1940 to Dr. Chevalier Jackson of Philadelphia and last year to Dr. James Ewing of New York. This award has come to be recognized as one of the most distinguished honors within the gift of the American Medical Association. The method of selection of the recipient of the Distinguished Service Medal is specifically defined in the By-Laws of the Association. Any Fellow of the Association may submit nominations, which should be sent, together with a record of the scientific services of the nominees, to the chairman of the Committee on Distinguished Service Award, Dr. A. A. Walker, 2250 Highland Avenue, Birmingham, Ala., or to the Secretary of the Association at 535 North Dearborn Street, Chicago. Of all nominations received by the committee, five are submitted to the Board of Trustees of the Association, from which the Board selects three to be submitted to the House of Delegates at its first meeting at the time of the annual session. Immediately on submission of the nominations by the Board of Trustees, the House of Delegates by official vote selects the recipient of the honor, to whom the Distinguished Service Medal is presented at the Opening General Meeting on the evening of the following day. extended list of distinguished physicians nominated for this award will enable the Committee, the Board of Trustees and the House of Delegates, all of whom participate in the selection, to determine for 1942 a recipient of distinction, whose nomination will reflect favorably on himself and on the Association.

# USELESS TANK TO BECOME USEFUL TANKS

At last the Cunningham tank is to serve some useful purpose. An Associated Press dispatch datelined Cleveland, March 31, states that this "giant shell ball . . . is being dismantled and its 1.000 tons of metal will go to the mills as scrap." The tank here referred to was originally constructed some thirteen years ago by the late Dr. Orval J. Cunningham of Kansas City, Mo., for the purpose of instituting his preposterous pressure treatment for diabetes, pernicious anemia and carcinoma. The million dollars required to build it was supplied largely by the industrialist Timken, manufacturer of bearings. Why do people of great wealth who are unacquainted with scientific fact and apparently unwilling to consult scientific authority so frequently support strange notions in the field of medical care? THE JOURNAL for May 5, 1928 carried a two and a

half page report of all the details connected with the method of treatment. "To explain his alleged results," said THE JOURNAL, "Dr. Cunningham advances a thesis that is altogether without scientific proof." It added "Under the circumstances, is it to-be wondered at if the medical profession looks askance at the 'tank treatment' and intimates that it seems tinctured much more strongly with economics than with scientific medicine?" Operated for several years on the unproved Cunningham thesis, it was noted in Time for Oct. 8, 1934 that James Henry Rand Jr., chairman-president of Remington-Rand (office equipment), had sufficient faith to entrust Mrs. Rand to Dr. Cunningham's aerotherapeutics. And their son James Henry Rand III, onetime University of Virginia medical student, had sufficient faith to understudy Dr. Cunningham for the past seven years. Last week young Mr. Rand bought Dr. Cunningham's sphere for \$500,000, will henceforth operate it with the help of Dr. Carl William Juler, 36, as the Ohio Institute of Oxygen Therapy,

Thus another industrial fortune was involved in this enterprise, which in the ensuing six years since its original construction had not accumulated the slightest bit of evidence of scientific worth. Fortunately the armed services of the United States will be able to find better use for the metal than it seems to have served.

# CLINICAL ESTIMATION OF BLOOD PRESSURE

The recorded level of blood pressure, in addition to individual fluctuation, is affected by numerous technical circumstances, such as the nature of the apparatus and whether the measurement is made by auscultation or by palpation. In a new study of the accuracy of blood pressure recordings, Ragan and Bordley' compared auscultatory pressure measurements with intra-arterial pressure measurements one hundred and thirty-eight times in 51 adult subjects. They found that the agreement between the auscultatory and intra-arterial measurements of systolic pressure was affected both by the size of the subject's arm and by the contour of the pulse wave. They concluded, therefore, that the commonly employed clinical method of measuring blood pressure should not be considered a truly accurate procedure and that misinformation is particularly likely to be obtained in subjects with unusually large or unusually small arms. If the arm is small, the clinical estimate of the systolic pressure is likely to be too low; if the arm is large, the clinical estimate of both systolic and diastolic pressures is likely to be too high. The error in either direction may exceed 30 mm. of mercury. These workers believe, therefore, that statistical studies of the relationship between blood pressure and body weight should take into account the measurement of the circumference of the arm on the accuracy of the blood pressure measurements. These investigations add to the evidence already available that the clinical expression of blood pressures must be accepted conservatively and interpreted with caution.

^{1.} Ragan, Charles, and Bordley, James, III; The Accuracy of Chris Measurements of Arterial Blood Pressure, Bull. Johns Hopkins Hop G9: 504 (Dec.) 1941.

# MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

# PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

# METHOD OF PROCUREMENT OF MEDI-CAL OFFICERS FOR THE U. S. NAVAL RESERVE

Rear Admiral Ross T. McIntire, surgeon general of the Navy, has submitted the following information:

Recruitment of medical officers for the U. S. Naval Reserve has been transferred from the office of the commandants of the naval districts to the directors of naval officer procurement, located in the cities listed. A physician desiring to apply for appointment in the Medical Corps of the Naval Reserve should communicate directly with the director of naval officer procurement in the location nearest his place of residence. A communication addressed to the director should contain full information regarding date of birth, medical school from which graduated, and professional attainments since graduation. In this communication the prospective applicant should request a circular of information for persons desiring appointment in the U. S. Naval Reserve, and application forms for such appointment.

The Procurement and Assignment Service does not act as a recruiting agency for the U. S. Navy. Applications for appointment in the Medical Corps of the U. S. Naval Reserve are cleared through the Procurement and Assignment Service by the directors of naval officer procurement. The only purpose of clearing through this service is to determine which applicants hold civilian positions essential to national defense, to another governmental agency, and those considered essential

on teaching faculties of accredited medical and dental schools. Such individuals will not be offered commissions in the U. S. Naval Reserve.

If physicians fill out the new questionnaire blanks which are soon to be distributed by the Procurement and Assignment Service and indicate that they desire to apply for appointment in the U. S. Naval Reserve, their names will be submitted to the Bureau of Medicine and Surgery, which in turn will communicate with these physicians.

OFFICES OF NAVAL OFFICER PROCUREMENT First Naval District, 150 Causeway Street, Boston. Third Naval District, 33 Pine Street, New York.

Fourth Naval District, seventeenth floor, Widener Building, Philadelphia.

Fifth Naval District, Chevrolet Parts Building, Norfolk and Altamont streets, Richmond, Va.

Sixth Naval District, The Center, Marion Square, Charleston, S. C.

Seventh Naval District, Langford Building, 121 S.E. First Street, Miami, Fla.

Eighth Naval District, Louisiana Building, 217-227 Camp Street, New Orleans.

Ninth Naval District, Board of Trade Building, 141 West Jackson Boulevard, Chicago.

Eleventh Naval District, 850 Lilac Terrace, Los Angeles.

Twelfth Naval District, Federal Office Building, Civic Center, San Francisco.

Thirteenth Naval District, 117 Marion Street, Seattle. Washington, D. C., 1320 G Street N.W.

### THE BATTALION MEDICAL OFFICER

HAROLD R. CONN, M.D., Akron, Ohio

The battalion medical officer probably enjoys the most individualistic responsibility of any officer in the service. Where his colleagues attached to sorting stations, ambulance companies and evacuation hospitals have the advantage of contact and conference, he is likely to be alone at the time of greatest stress.

It is obligatory that the battalion surgeon be young, in perfect health and physically tough to withstand the rigors of active campaigning with his unit. He must master subjects foreign to his colleagues in the rear and, to mention a few, these include troop hygiene and sanitation, medical corps training and drill, map reading, orientation and something of tactics and the art of concealment. The training of his enlisted personell is a task of paramount importance, and there are many other fields to explore, such as gas proofing, the selection of sheltered havens where battle casualties

may be protected, and the vital problem of feeding the wounded.

He may consider these exertions medical inactivity, but there will follow periods when all his skill will be required and the military routine will be less exacting than the professional requirements. These extraordinary demands will come during severe and sustained action and he must retain coolness and calmness and must show a near perfection of surgical judgment under the most adverse conditions. Surgical judgment is that indefinable but essential attribute compiled of just the right mixture of a stable nervous system, past surgical experience, common sense and an ever ready diagnostic ability. It seems a needless sacrifice; but wars are won by sending the best men to the front, for only the best possess the essential qualities necessary to insure victory.

The battalion medical officer's responsibilities make demands on his previous training but in surroundings and under conditions which exist nowhere in his past experience. He most certainly has never before been suddenly confronted with a half hundred or more injuries running the gamut of head, chest, abdoment and extremities, nor has he ever before worked to the limit of his physical and mental capacities where all about him is chaos and confusion. True there is little in the routine but essential military training that fits him to meet this sudden and overwhelming activity, but experience can be simulated by military maneuvers and through special training from his regimental and division surgeons.

# QUALIFICATIONS OF A FIRST LINE MEDICAL OFFICER

In fact, no greater duty rests on the division surgeon than to see that his first line officers are selected from men who show initiative and have had some civilian traumatic experience. They should be taught the routine and correct use of tourniquets and traction splints, the differentiation between traumatic and cerebral shock, and a profound appreciation of the effects of dehydration, exposure and hemorrhage on wounded In this training the time element should be stressed as all important. The rapid collection of wounded and their intelligent dispatch to the rear definitely determines the mortality rate of all except the trivial and the initially fatal injuries. Many prob-Iems will arise which never confront the physician in civilian practice, where the ever ready and fast ambulance delivers the casualty to the hospital receiving room usually within a matter of minutes, not hours. as may be the fact in war.

There exists the notion among young medical graduates that an appointment to operative surgical teams or to base hospitals offers opportunities to gain vast experience in chosen specialties, whereas being assigned as a battalion medical of an atrophy of previous education and is absurdly wrong.

With a few individual exceptions, the surgery in World War I taught the physician but little. As a member of an operating team he found that the injuries differed greatly from those seen in civilian life, and the technic of débridement (operative cleaning of the wound) was destructive rather than constructive. There was, moreover, no opportunity to observe the end results of operations done. In base hospitals the surgery was and will be done by a few men, and the junior officer will act as the equivalent of a house officer in a well organized civilian institution. Finally, between the surgical units operating behind the field of battle and the combat battalion there is little or nothing in the way of practical civilian medical experience to be acquired.

# THE REAL TEST OF SKILL: BORDERLINE CASES

The battalion officer, on the contrary, after a period of military training may some day expect to find himself confronted with a number of injuries which would disorganize the largest civilian hospital in the United States. He may anticipate that in a relatively minor engagement 10 per cent of his battalion will be wounded. Considering the total casualties, one half will represent trivial and initially fatal wounds while the remaining half, or 50 per cent, will present the real test of skill. The mortality rate of this last group will be positively influenced by the ability, resourcefulness and courage of the medical officer.

It seems unnecessary to call attention to the fact that moribund patients should not be evacuated from the battalion aid station, yet this instruction had to be repeated again and again to the vast majority of bat-

talion surgeons during their early weeks of real action in the last war. As physicians all of us have been trained not to usurp the powers of Providence but to attempt to save every patient against impossible odds and to keep trying until life is fully and completely This principle cannot entirely endure on the battlefield. Even to the inexperienced medical officer it must be obvious that he will be confronted simultaneously with hopelessly wounded and with cases in which reasonably prompt treatment and evacuation will result in recovery. He must learn under the trying conditions of active combat to recognize promptly the fatally injured and emulate the calm impartiality shown by the judiciary when they pass sentence by refusing to clutter his limited evacuation facilities with the doomed. It is platitudinous to state that, no matter how good the surgical facilities and personnel may be in the rear, they cannot save mortally wounded and dead The borderline cases present the real test of ability. Many of these may be saved by proper deshocking, either prompt mobilization or immobilization awaiting reaction, all depending on the wound and the response to initial diagnosis and treatment.

In a lifetime of emergency surgery the physician will probably not be called on to make the decisions which were demanded daily of the battalion surgeon during such offensives as the Meuse Argonne. Questions as to whether to give more morphine or to withhold it, to continue deshocking by external heat and posture or attempt to rush the patient to a hospital, to loosen the tourniquet at the risk of death or to leave it tight and sacrifice a limb, to attempt to separate cerebral shock from traumatic shock, and to estimate the degree which cold, fright, dehydration, and exposure aggravated wounds were presented at times by the minute.

These are not flights of fancy but the cold reality which confronts the battalion surgeon hidden in a poorly lighted dugout or in a shell hole under fire in the dead of night without adequate help, with some of his own stretcher bearers wounded and with the field around him still covered with badly wounded but unrecovered men. There will be no blood pressure readings, no x-ray examinations and no pulse and respiration charts to help him. It should take but little imagination for the young officer to picture for himself the difference between this scene and the one in the hospital in which he trained, where an occasional casualty was brought in, where he had an abundance of professional assistance, superb nursing care, electric lights and blood trans-fusion available within ten or fifteen minutes after injury. The officer who feels that his professional talent will be wasted as a battalion surgeon simply hasn't been there.

It should be reemphasized that he must exercise not only coolness and good sense but shrewd diagnostic acumen under the most adverse conditions without the benefit of counsel and often after twenty-four hours or more of constant duty.

# THE BUILDING OF MORALE

The morale of any battalion is very positively influenced by the ability and the élan of its medical personnel. Combat troops, however courageous, react splendidly to the knowledge that if wounded and helpless on the field they will somehow be recovered by the medical corps and will receive prompt, adequate and competent care. The outstanding records of many units can be partially credited to the courage and resourcefulness

of their supporting medical detachments. There is no place in either civilian or military professional activity where gratitude and devotion are so generously given as to a real doctor in action with combat troops.

After recovery and segregation in the battalion aid station or the collecting station the most common question asked the medical officer by the wounded is "How seriously am I hit?" or "Am I going to get well?" and the reaction on the part of the patient to a cheerful and reassuring response is one of the amazing phenomena of war wounds. It is second only to the dramatic reaction made by wounded men when placed in deshocking cabinets and external heat applied.

Every variety of injury needs special attention, but it should be recalled that during the first two years of the last war the mortality rate, not taking into account the amputation rate, of compound fractures of the femur was 83 per cent, a ghastly total which exceeded gunshot wounds of the head, the chest or the abdomen. When in 1916 the use of traction splints in the field as advocated by Sir Robert Jones was made a military order, the mortality of compound fractures of the femur was reduced to 27 per cent. The reduction was not so spectacular in the other compound fractures but it was sufficient to make it a military offense to ignore the dictum "Splint 'em where they fall."

### ENLISTED MEN BECOME ADMINISTRA-TIVE CORPS OFFICERS

Two hundred and twenty-four enlisted men of the medical department of the Army became second lieutenants, March 28, when they graduated from the officer candidate course at the Medical Field Service School, Carlisle Barracks, Pa., following a course of instruction. These men were selected to attend the school by reason of their excellent military records. Forty-nine of the candidates were regular army enlisted men, nineteen were from the National Guard and one hundred and fifty-seven entered the army through Selective Service. The majority of them had only one year or less of service, thirty-one had had two years and thirty-one others three years of service. One hundred and twenty-six members of the class had college degrees, eighteen were pharmacists and seven were lawyers. The new officers came from thirty-six different states. The diplomas were presented by Brig. Gen. Addison D. Davis, Assistant Surgeon General of the Army and commandant of the Medical Field Service School. The oath of office was administered by Major Thomas G. Hester, one of the senior officers of the medical administrative corps.

# THE HOARDING OF FIRST AID MATERIALS

Director James M. Landis of the Office of Civilian Defense, Washington, D. C., has announced that a wave of hoarding of first aid material is sweeping the country and threatens to produce a serious shortage of surgical gauze, bandages and other essentials required by the army and the Emergency Medical Service of the Office of Civilian Defense. Millions of first aid kits, he said, are being installed in countless places where there is practically no likelihood that they will ever be used. This unlimited purchasing of first aid material is based on a wrong conception of air raid casualties, Dr. George Baehr, chief of the Office of Civilian Defense Medical Division, said. These casualties are usually of such severity that only trained emergency medical field units are competent to attend the injured at the site of the accident. Emergency medical field units composed of doctors, nurses and trained auxiliaries have been established in every community likely to be bombed, especially on

### THE DOCTOR IN ACTION

It is not the intent here to discuss the intriguing differentiation in the treatments of exposure, hemorrhage, acidosis and shock, for books have been written about the cause, symptoms and treatment of each individually. The battle casualty usually presents a combination of all of them, but the battalion surgeon will be amazed at the reactions of apparently desperately injured young soldiers to reassurance, traction splinting, morphine, external heat and hot fluids internally.

The treatment of infections and the chemotherapy of wounds by use of the sulfonamides likewise present special problems in instruction.

Once in action the days of paper forms, sanitary inspections and foot work are forgotten and the battalion officer becomes what he has studied and worked and hoped to be: a doctor in the full sense of the word. Among medical veterans the expression is common that if they go again they want to serve with troops and it is not only the excitement but the actual professional responsibility which inspires them.

Possibly good battalion surgeons are born or just happen, but certainly many can and must be made; for the whole medical organization behind them is dependent on their ability, while ahead of them the soldier places his trust and his life in their hands.

1144 East Market Street.

our coasts, and these units are promptly available in all parts of the community, day and night. Air raid wardens will not be expected to care for the wounded in the event of air raids, but, because of the present misunderstanding, tens of thousands of air raid wardens are stocking up on first aid material and urging every one in their zone to do so. Many households are duplicating the materials already in their medicine cabinets which would be of little value for the major crushing injuries which are characteristic of air raids. A small kit has been designed which contains a few large shell dressings and can be worn on a belt for an air raid warden or a trained stretcher bearer. Mr. Landis said that the rapidly increasing wastage of gauze bandages and other first aid material is reaching alarning proportions.

# ONE MILLION BLOOD DONORS REQUIRED

The program of the American Red Cross for supplying blood plasma to the armed forces has entered its second year of operation, 30,477 blood donations being reported for the first two weeks in March by Red Cross chapters maintaining donor centers. Inaugurated in February 1941 at the request of the surgeon generals of the Army and Navy, this project has expanded as rapidly as laboratory facilities to process plasma have become available. Donor centers are now operating in eighteen cities. Shortly after beginning the project, the Red Cross was requested to deliver 380,000 units of plasma by July 1942. For the year beginning July 1, 1942 the Army and Navy have requested the Red Cross to obtain an additional 550,000 units, making a minimum total of 930,000 units. To provide this total will require somewhat in excess of a million donors. According to Dr. G. Canby Robinson, director of the Red Cross Blood Donor Service, the present rate of donations will have to be maintained without letup and may even have to be increased. Red Cross blood donor centers are now in operation in New York, Philadelphia, Baltimore, Buffalo, Rochester, N. Y., Indianapolis, Detroit, Pittsburgh, St. Louis, Boston, Milwaukee, Cleveland, Chicago, San Francisco, Los Angeles, Cincinnati, Washington, D. C., and Brooklyn. Seven commercial laboratories have contracts with the government for processing plasma on a cost basis. The total number of donations during the first year of operations aggregated 82,857. The value of

blood plasma in the treatment of burns and wounds and in combating shock was amply demonstrated at Pearl Harbor. Surgeons on duty there state that many lives were saved through the use of plasma supplied by the local medical society, the American Red Cross and other agencies.

# INSTRUCTION IN CHEMICAL WARFARE

A series of four day intensive courses for teaching the medical aspects of chemical warfare to qualified physicians is to be given at the University of Cincinnati College of Medicine, which was selected by the Office of Civilian Defense, Washington, D. C. In the first group which took this course, beginning February 23, there were about thirty physicians from New England, New York and the Middle Atlantic states. Another course was started on April 6 for physicians from other parts of the country. The course was organized by Dr. Leon Goldman of the department of dermatology and Dr. Robert A. Kehoe, director of the Kettering Laboratory.

A school for gas defense to train experts in the field of poisonous gases will be established at the University of Buffalo (N. Y.). It is being inaugurated at the request of the Erie County Defense Council, whose chairman, Erie M. Wheeler, has appointed Dr. Howard W. Post, assistant professor of chemistry at the university, to organize the course of instruction. Fifty teachers from high schools of Erie County will take the course to prepare themselves for instructing civilians in their communities. Dr. Post says that the course will consist of three Saturday afternoon and one evening classes with a total of twelve hours of instruction to be provided by seven instructors.

## SERVICE CLUBS FOR AUSTRALIA

The American Red Cross has announced that a staff of eight welfare workers with the American troops in Australia will set up Red Cross service clubs to provide recreation, sleeping quarters and canteen service for men on leave in at least three Australian cities. In charge of each of the clubs will be a prominent American man and woman, a social worker and volunteers from American residents in Australia. Charles Gamble, American business man long resident in Australia, will be American Red Cross delegate, with headquarters in Melbourne, and director of all activities; Irving Williams of the Washington national staff will be field supervisor of the Red Cross Military and Naval Welfare Service in all military stations, and Albert Scott, formerly with the Near East Foundation, will be recreational supervisor. The Red Cross also said that three million surgical dressings made by women volunteers have been shipped to the Australian Red Cross for use in Australian hospitals.

# ALLOCATION OF EQUIPMENT FOR CIVILIAN DEFENSE

The first allocation of fire fighting equipment, gas masks, stretchers and cots under the recent \$100,000,000 Congressional appropriation for civilian defense will be made principally to certain cities within 300 mile coastal strips which are regarded as "target areas," a memorandum of plans released by James M. Landis, director of the Office of Civilian Defense, states. Communities will be selected largely on the basis of priorities established by the War and Navy departments. Three basic considerations will be used in determining priorities among communities: likelihood of attack, vulnerability and importance of war production of manufacturing plants in the communities. In urging communities not to send requests for requisitions for supplies to the headquarters of the Office of Civilian Defense in Washington, Mr. Landis says "Allocations of protective supplies must and will be made according to plans arrived at in cooperation with the military experts of the War Department. Under the law we cannot make allocation on any other basis and we will be unable to give consideration to the requests of individual localities at variance with such a plan."

Tentative allotment of equipment for medical teams and casualty stations will be made on the basis of (a) one team

for each 5,000 of population, (b) one casualty station for each two medical teams, stretchers on the basis of four for each 5,000 of population, cots on the basis of twelve for each 5,000 of population, first aid belts on the basis of nine for each 5,000 of population, and identification tags for medical kits on the basis of one book of twenty tags for each 5,000 of population.

Procurement of all the equipment and supplies will be by appropriate agencies of the War Department.

# REPORTING OF REGISTRANTS WITH VENEREAL DISEASE

The following memorandum has been received from the City of New York Department of Health:

Current Selective Service medical and serologic examinations emphasize the value to the practitioner of prompt compliance with the venereal disease provisions of the sanitary code. All registrants found infected with syphilis, gonorrhea, chancroid or lymphogranuloma venereum are referred by the Selective Service administration to the health department for further consideration. Where the registrant is under medical care by his physician and has been properly reported, no further action is taken. Where men are not under medical care the need for rehabilitation, as well as for public health control of communicable disease, leads to intensive follow-up procedure to place all infected registrants under treatment. This follow-up is made by the health department by arrangement with the Selective Service.

Each physician should review his venereal disease cases and submit the required case report (417V) to minimize the possibility of inconvenience to him and particularly to his patients eligible for military service. A supply of the required forms and the regulations for reporting may be secured by application to the Bureau of Social Hygiene, Room 328, 125 Worth Street, New York City, or by telephoning Worth 2-6900, extension 252.

## REHABILITATION PROGRAM

The Baltimore City Medical Society sponsored a meeting at Osler Hall, Baltimore, March 13, which was entirely devoted to the subject of the physical rehabilitation of Selective Service registrants. Brig. Gen. Lewis B. Hershey, National Director of Selective Service, discussed "The Program of Selective Service in the Rehabilitation of Registrants"; Col. Leonard G. Rowntree, Chief, Medical Division, National Selective Service Headquarters, "Medical Aspects of Rehabilitation"; Col. Henry C. Stanwood, State Director, Maryland Selective Service System, "Administrative Responsibilities of Rehabilitation," and Lieut. Col. Amos R. Koontz, State Medical Director, Maryland Selective Service System, "Brief Outline of the Maryland Rehabilitation Plan."

Maryland has been selected by the National Selective Service System Headquarters as the first state in which to try out the physical rehabilitation plan announced by the President. The plan involves the correction of remediable defects which disqualify registrants for general military service. The correction of defects is to be done by designated physicians and dentists at government expense.

# THE BOTKIN HOSPITAL IN MOSCOW RECENTLY BOMBED

The largest medical unit in the Soviet Union, the Botkin Hospital in Moscow, was severely bombed during the German raids several months ago, but not I patient was killed, according to the Moscow radio correspondent of the New York Times. The Botkin Hospital had two thousand, three hundred and fity beds available to war wounded, and until the Germans retreated from Moscow it was practically a front line hospital. At present the medical center is acting as a base hospital and even is resuming medical courses for the training of field surgeons. The Times correspondent said that medical supplies from the United States had been arriving and that a considerable proportion of the material from the Allies was going to new military hospitals being established elsewhere in the Soviet Union.

# AMERICANS IN CANADIAN ARMED FORCES

Americans serving with the Canadian armed forces will be given an opportunity to enlist in the U. S. Army or Navy under an agreement with Canada, the State Department has announced. About fifteen thousand Americans are now in the Canadian services. The agreement provides that Canadian authorities, not later than April 6, shall inform all Americans who have lost their citizenship by taking an oath of allegiance on enlistment in the Canadian armed forces that they may regain their citizenship and enlist in the American services. April 20 was set as the limit for transfer applications.

# SUPERINTENDENT OF NURSES PROMOTED TO COLONEL

The Superintendent of the Army Nurse Corps, Mrs. Julia O. Flikke, was promoted on March 14 to the grade of Colonel and the Assistant Superintendent of the Nurse Corps, Florence A. Blanchfield, to Lieutenant Colonel, for the duration of the war. Colonel Flikke, a native of Wisconsin, entered the school of nursing of Augustana Hospital, Chicago, in 1912, took postgraduate work at Columbia University, joined the Army Nurse Corps in 1917 and soon after was ordered overseas. She was appointed superintendent of the Army Nurse Corps with the relative rank of major in 1937. Colonel Flikke has served at various army stations, including the Philippines and Tientsin, China. Lieutenant Colonel Blanchfield is a native of West Virginia and graduated in nursing from the Southside Hospital in Pittsburgh, entering the Army Nurse Corps in 1917. She did postgraduate work at Johns Hopkins Hospital, Baltimore, and has served in France, China and the Philippines.

# GEN. FREDERICK RUSSELL RECEIVES THE SNOW AWARD

Brig. Gen. Frederick F. Russell, U. S. Army Medical Reserve Corps, received the William Freeman Snow Award for distinguished service to humanity in the social hygiene field at the annual meeting of the American Social Hygiene Association in Boston, February 3. General Russell was for many years a member of the medical corps of the Army. He played a leading role in introducing antityphoid vaccination in the Army, carrying on this work at the time he taught bacteriology in the Army Medical School. The Snow Award was made in recognition of General Russell's work in organizing the syphilis and gonorrhea control program in the Army in the first world war, which it is said has become the basis of the present army program in this field. The two former recipients of this award were Gen. John J. Pershing and Surg. Gen. Thomas Parran of the U. S. Public Health Service.

# THE WELLCOME MEDAL AND CASH AWARD

The Association of Military Surgeons of the United States announces the competition for 1942 for the Sir Henry Wellcome medal and cash prize of \$500 for the best paper on "Measures of Preventive Medicine Recommended by the Federal Medical Services to Insure the Maximum Improvement of the Selectee of 1961 over Him of 1941." The competition is open to all medical department officers of the Army, Navy, Public Health Service, organized militia, U. S. Veterans Administration, U. S. volunteers and those in the reserves, commissioned medical officers of foreign military services and all members of the association, except that no one person shall be awarded a prize more than once in these prize competitions. Competitors must send five copies of their paper unsigned by their true name but identified by a device or nom de plume to the Secretary of the Association of Military Surgeons of the U.S., Army Medical Museum, Washington, D.C., to arrive not later than Aug. 31, 1942 and accompanied by a sealed envelop marked on the outside with the fictitious name or device assumed by the writer and enclosing his true name, title and address. The essays must have a minimum of three thousand words and must not exceed ten thousand words.

# ONE WEEK INSTITUTES FOR NURSES

Under the sponsorship of the American Red Cross, the Michigan Department of Health, the Michigan State Nurses Association and the W. K. Kellogg Foundation, one week institutes are being given at Clear Lake Camp near Battle Creek, Mich., to provide an opportunity for Michigan nurses to brush up on their technic for teaching home nursing classes in connection with the civilian defense program. The first of the institutes was held the week of March 9, the second began March 16, and others will follow. The Kellogg Foundation provides meals and lodging for nurses in attendance.

# BALTIMORE'S DECONTAMINATION CORPS

"Sniff" sets will be used to teach one hundred and sixty-one employees of the Bureau of Street Cleaning of Baltimore how to recognize war gases as a part of their instruction in methods of gas decontamination, the Baltimore Sun reports. In the group there will also be seventy-five chemists and one hundred and forty-two additional citizens. These will comprise the city's decontamination corps. Decontamination of streets and lawns and first aid for victims of war chemicals will be taught those taking the course.

### BLOOD DONOR DAYS

The facilities of the Wayne University Student Health Service, Detroit, beginning February 16, were turned over to a Red Cross mobile unit for the receiving of contributions of blood for as many days as are necessary to care for the volunteers. Two hundred students and faculty contributions may be accommodated by these facilities each day. The student chairman of the project is Louis McGuiness.

### TEACHERS OF AIR RAID WARDENS

The Civilian Defense Institute at Wayne University, Detroit, which was organized last month, trains school teachers and industrial leaders to be teachers of air raid wardens. A class of one hundred and sixty graduated on March 12, and more than two hundred and fifty persons are studying defense organization, blackout, air raid precautions, elementary camouflage, and fire and gas defense.

# CAPTAIN STEPHENSON RETURNS FROM LONDON

Capt. Charles S. Stephenson, Medical Corps, U. S. Navy, recently attached to the American embassy in London, England, addressed a meeting of the Caduceus Post of the American Legion, New York City, at the Seventh Regiment Armory, March 25, on "Military Medical Observations in England."

# DR. TURNER ON DUTY IN SURGEON GENERAL'S OFFICE

Lieut. Col. Thomas B. Turner, medical reserve corps, U. S. Army, professor of bacteriology at Johns Hopkins School of Hygiene and Public Health, has been ordered to active duty in the Surgeon General's Office, Washington. D. C., as chief of the subdivision of venereal disease control.

# COLONEL HILLMAN PROMOTED TO BRIGADIER GENERAL

The President sent to the Senate, January 28, for confirmation the promotion to the temporary grade of brigadier general of Col. Charles C. Hillman, M. C., U. S. Army. Colonel Hillman, who has been in charge of the professional service division of the Office of the Surgeon General, will continue his tour of duty in that office.

# DR. LEE ADDRESSES ARMY OFFICERS

Dr. Roger I. Lee, Boston, member of the Board of Trustees of the American Medical Association, addressed the medical department officers in Washington, D. C., February 16, at the Army Medical Center on "The Significance and Course of Borderline Abnormalities of Blood Pressure."

# ORGANIZATION SECTION

# OFFICIAL NOTES

# THE ATLANTIC CITY SESSION

# Hotel Reservations

Fellows of the Scientific Assembly of the American Medical Association who expect to attend the annual session of the Association in Atlantic City, June 8-12, are urged to make

their hotel reservations at the earliest possible time. For such reservations, please send your first, second and third choice for a hotel reservation to Dr. V. Earl Johnson, Chairman of the Hotel Committee, 16 Central Pier, Atlantic City, N. J., in accordance with the information contained on advertising page 48 of this issue of The Journal.

# MEDICAL LEGISLATION

# STATE MEDICAL LEGISLATION

### New York

Bills Introduced,-S. 1156, to amend the workmen's compensation law, proposes to eliminate the provision of the present law authorizing an employee or carrier to select and pay for a physician to participate in an examination of the injured employee. S. 1217 and A. 1593, to amend the labor law, propose to limit the hours of employment of an ambulance chauffeur or driver in a private hospital or other private institution to not more than eight hours a day or forty-eight hours a week except in event of an extreme emergency. S. 1271 and A. 1613, to amend the public health law, propose to authorize the commissioner to establish temporary health districts, whenever the protection of the public health so requires, and to promulgate temporary health regulations to be effective in such districts. S. 1325 and A. 1668, to amend the education law, propose to make it unlawful for any corporation, joint stock association, company, association or individual doing business under a certificate of trade name to practice podiatry. A. 1386, to amend the general business law, provides for the regulation of nurses registries throughout the state. The term nurses registry means the business of conducting a registry, office or other place for the purpose of counseling, offering, procuring, promising or attempting to procure employment or engagements of any kind, for registered professional nurses, or for licensed practical nurses, or for dietitians, anesthetists, medical secretaries or medical technicians and for which a fee is exacted or charged. A. 1399, to amend the labor law, provides that, in cities having a population of over one million, ambulance drivers shall not be permitted to work more than eight hours a day or

more than forty-eight hours a week or more than six days a week except in case of certain specified emergencies endangering life or property. A. 1642, to amend the labor law, provides that unemployment compensation benefits shall not be denied to any person who has become incapacitated through illness and who had previously qualified for benefits. A. 1673, to amend the labor law, proposes that any employee, registered as totally unemployed, who is capable of employment at the time of registration, and subsequently becomes sick, shall not be prevented from obtaining benefits under the unemployment compensation act due to inability to accept employment.

Bill Passed.—The following bill has passed the assembly: A. 964, to amend the insurance law, proposes to authorize the writing of insurance against an obligation of the insurer to pay medical, hospital, surgical and funeral benefits to injured persons, irrespective of legal liability of the insured.

### Rhode Island

Bills Introduced.—H. 833 proposes to repeal the existing law relating to the licensing and regulation of the practice of veterinary medicine, surgery and dentistry. H. 836, to amend the law relating to the licensing and regulation of hair dressers and cosmetic therapists, proposes, among other things, that "hair-dresser and cosmetician" shall include a person who, by the use of the hands or appliances or of cosmetic preparations, antiseptics, tonics, lotions, creams, powders, oils or clays, engages, with or without compensation, in massaging, cleansing, stimulating, manipulating, exercising or beautifying or in doing similar work on the neck, face or arms or who removes superfluous hair from the body of any female person.

# WOMAN'S AUXILIARY

### California

Capt. Samuel Ross of the Fresno Air Base was guest speaker at a recent meeting of the Fresno County medical auxiliary at the University-Sequoia Club. On January 5, the group met to discuss the part which doctors' wives might play in the defense program. It was decided that a complete file of the qualifications of members and a call list be kept. Entertainment was furnished by a chorus made up of members of the evening adult education classes of Fresno High School.

# Georgia

About 500 health leaders of Fulton, DeKalb and Rockdale counties attended the health education meeting sponsored by the Woman's Auxiliary to the Fulton County Medical Society recently at the Crawford W. Long Nurses' Home in Atlanta. Mrs. Jeff Richardson, chairman of health films, explained how these films can be obtained by any one interested. The new sound films and film projectors in each district are owned by the Medical Association of Georgia. Dr. W. A. Selman, councilor for the Fifth District, talked on what the association hopes to accomplish for the health of Georgians by showing the films.

The Woman's Auxiliary to the Fulton County Medical Society met recently in Atlanta with Mrs. Murdock Equen, president, presiding. Mrs. Harry Rogers, chairman of Research in Romance of Medicine, had charge of the program, which featured a talk by Dr. Sterling Clairborne on vitamins. Mrs. Allen H. Bunce gave a report on the recent meeting of the Woman's Auxiliary to the Southern Medical Association, held in St. Louis.

New Jersey

At the January meeting of the Camden County auxiliary, the members voted to increase the annual dues from \$2 to \$3. Fifty defense stamp booklets, each containing one 25 cent stamp, were sold to members at this meeting. On January 19 the auxiliary attended a "Friendship Dinner" in Camden given to encourage cooperation of the auxiliary with the women's clubs and other organizations.

The Tuberculosis Hospital at the medical center in Jersey City entertained thirty members of the Woman's Auxiliary to the Hudson County Medical Society in January. The auxiliary decided to buy a \$1,000 defense bond. Pamphlets were distributed to each member to promote individual purchase of defense bonds and stamps.

# Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LISS GENERAL INTEREST: SUCIL AS RELATE TO SOCIETY ACTIVI-TIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARKANSAS

State Medical Meeting.—The Arkansas Medical Society will hold its sixty-seventh annual meeting in Hot Springs National Park, April 27-29, under the presidency of Dr. H. Fay H. Jones, Little Rock. Sessions will be held at the Arlington Hotel. A public meeting will be held Monday evening. Out of state speakers at the scientific sessions will include:

Dr. Winthrop M. Phelps, Baltimore, The Problem of Cerebral Palsy and Its Relation to Rehabilitation and Public Health.

Dr. Walter S. McClellan, Saratoga Springs, N. Y., The Importance of Spas in Military and Civilian Defense Program.

Dr. William J. McMartin, Omaha, Goldblatt Kidney.

Dr. Lawrence T. Post, St. Louis, Aniseikonia.

Dr. Charles M. Wilhelmj, Omaha, The Etiology and Treatment of Traumatic Shock.

Mr. John M. Pratt, Chicago, National Physicians' Committee for the Extension of Medical Service.

Dr. Delmas K. Kitchen, Detroit, Sex Hormones: Physiology, Diagnosis, Therapy.

A memorial session will be held on Tuesday at the First Presbyterian Church. CALIFORNIA

Industrial Accident Section .- The Industrial Accident Section of the Los Angeles County Medical Association observed the twentieth anniversary of its founding in March. The Bulletin of the Los Angeles County Medical Association recalls that in 1929 the group instituted an educational program to the definition of the treatment of industrial and the second of the treatment of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of t to standardize the treatment of industrial casualties and began the publication of scientific papers for that purpose.

University President Honored .- A life fellowship in the Thomas A. Edison Foundation for the Advancement of Science and Education has been conferred on Robert Gordon Sproul, LL.D., Berkeley, president of the University of California, Science reports. The award is given to "only a few outstanding Americans in the fields of medicine, science, art and education, who have made some real contribution to human welfare." Dr. Sproul has been president of C. " fare." Dr. Sproul has been president at California since 1930. Until the recent appointment of Dr. Francis S. Smyth as dean of the University of California Medical School, San Francisco, Dr. Sproul had been acting dean.

#### CONNECTICUT

Dr. Meader to Direct Cancer Research.—Ralph G. Meader, Ph.D., assistant professor of anatomy, Yale University School of Medicine, New Haven, has been appointed assissity School of Medicine, New Haven, has been appointed assistant to the director of the Jane Coffin Childs Memorial Fund for Medical Research at Yale and will supervise the fund's activities during the absence of Lieut. Col. Stanhope Bayne-Jones, director, who has reported for duty in the Office of the Surgeon General, Washington, D. C. The Childs Memorial Fund was established at Yale in 1937 and is primarily concerned with general research. with cancer research.

Rehabilitation Clinics.-The state department of education, the state medical society and the Manufacturers Association of Connecticut are cooperating in a series of rehabili-tation clinics for the purpose of employing physically handi-capped persons in Connecticut factories. Groups of crippled and otherwise handicapped persons registered with the rehabilitation service of the department of education will be brought together in clinics at several points within the state, examined by a team of physicians provided by the state medical society and classified according to their occupational capabilities. Yale University is making available a staff of psychologists to administer aptitude and performance tests. The Manufacturers Association of New Haven County will be represented by a committee of employers who will aid in determining occupa-tional fitness. A representative of the U. S. Employment Service for Connecticut will be present to facilitate referrals to employers. The applicants will then be interviewed by employment managers of Connecticut factories and placed in jobs they ment managers of Connecticut factories and praced in jobs they will be able to fill. New Haven was selected for a clinic area as an initial step. On March 15 an all day clinic was held for a minimum of twenty physically handicapped persons. Examinations were made by a group of specialists selected by the state medical society.

### GEORGIA

State Medical Meeting in Augusta .- The Medical Association of Georgia will hold its annual meeting at the Bon Air Hotel, Augusta, April 28-May 1, under the presidency of Dr. Allen H. Bunce, Atlanta. The program will include symposiums on public health problems, psychoses and psychoneuroses, eye, ear, nose and throat problems and the roentgenologic problems of the gastrointestinal tract. Speakers include:

Dr. Charles W. Roberts, Atlanta, Human versus Material Values in Medical Practice.

Dr. Frank H. Lahey, Boston, Medical Problems: National, Economic and Scientific.
Dr. Thomas J. Collier, Atlanta, Crawford Williamson Long, 1815-1878.
Dr. Robert C. Major, Atlanta, Obliteration of Chronic Empyema

Dr. Reuben M. Reifler, Macon, Fungous Infections of the Skin.
Drs. Robert F. Norton and John T. McCall Jr., Rome, Treatment of
Lung Abscess with Alcohol Intravenously.

The Abner Wellborn Calhoun Lecture will be delivered Wednesday by Dr. Perrin H. Long, Baltimore, professor of preventive medicine, Johns Hopkins University School of Medicine, Baltimore, on "Sulfonamide Therapy: Its Applications and Limitations."

#### TDAHO

Society News.—The Southwestern Idaho Medical Society was addressed in Boise, February 20, by Drs. Frank M. Sprague, Boise, on "Evaluation of Physical Fitness" and William W. Bauer, Director, Bureau of Health Education, American Medical Association, Chicago, "Medical Relationships to War Activities."—Dr. Dan C. McDougall discussed "Acrodynia or Pink Disease" before the Pocatello Medical Society, Pocatello recently. Pocatello, recently.

ILLINOIS

Public Health Conference. — The second annual public health conference of the Illinois Public Health Association health conference of the Illinois Public Health Association will be held at the Hotel LaSalle, Chicago, April 20. One general session will be devoted to "Integration of Public Health and Civilian Defense." On Monday evening Dr. Roland R. Cross, state director of health of Illinois, will give an address on "Public Health in War Time" and Carl E. Buck, Dr.P.H., New York, of the American Public Health Association, "The Future of Public Health in Illinois." The Iuncheon session on Tuesday will be addressed by Dr. Morris Fishbein, Editor of The Journal, on "The Effect of the War on Public Health Personnel and Programs." There will be round table and panel discussions, one session for milk saniround table and panel discussions, one session for milk sani-tarians and a joint bacteriology and sanitary engineering

Chicago

Lilly Prize Awarded to Biochemist.—The Eli Lilly prize of \$1,000 in biologic chemistry has been awarded to Earl A. Evans Jr., Ph.D., associate professor of biochemistry, University of Chicago, for his work which "revolutionizes thinking about the role of carbon dioxide in the animal body." Dr. Evans received his Ph.D. at Columbia University, New York, in 1936. He was assistant plarmacologist at the Johns Hopkins University School of Medicine, Baltimore, 1931-1932; assistant in endocrine research, University of Chicago, 1932-1934. He became instructor in biochemistry in 1937, assistant professor in 1939 and associate professor, July 1, 1941.

War Conference for Protection of Industrial Workers. -A war conference for the protection of workers in industrial plants was held at the Stevens Hotel, April 9-10, under the auspices of the Office of Civilian Defense of the Chicago Metropolitan Area in cooperation with the Chicago Associa-tion of Commerce and the Illinois Manufacturers' Association. The purpose of this meeting was to acquaint operators of fac-tories, warehouses, stores and all other kinds of industrial plants with the problems of plant protection they are likely to meet under war conditions and to advise them of the kinds of internal organization they may set up in order to mesh properly with the Office of Civilian Defense organization in the metropolitan area. The following problems were discussed, among others: enemy attack by air raid or gas; sabotage, espionage and other fifth column activities; accidents, fire and other industrial hazards made acute by sustained peak production; emergency medical, hospitalization and medical services; emergency communications and guard organizations, and iden-

emergency communications and guard organizations, and identification systems. Among the speakers were:

Mayor Edward J. Kelly, U. S. Coordinator of Civilian Defense, Chicago Metropolitan Area.

Sterling Morton, president, Illinois Manufacturers' Association. Dr. Morris Fishbein, Editor, The Journal of the American Medical Association.

Dr. Herman N. Bundesen, president, Chicago Board of Health. Dr. Harry E. Mock, chairman for the American Medical Committee on Industrial Health, Bennett S. Chapple Carnegie-Illinois Steel Corporation.

### MAINE

Cooperative Program for Blood Banks .-- Fourteen hospitals in Maine are cooperating in the first integrated system of blood plasma banks for civilian protection in New England communities, according to the state medical journal plan drawn up by the faculty of Tufts College Medical School, Boston, communities will receive protection in proportion to the amount of blood they donate. Collection depots will be set up in each of the fourteen community hospitals which will forward the blood to the Central Maine General Hospital in Lewiston for extraction of the plasma On its return the plasma will be stored in the local hospital for emergency use The Lewiston plan provides for retention of about 10 per cent of the plasma at the regional center, which will be available for use in any community which suffers a major disaster Local hospitals in turn may retain for one or two weeks several units of whole blood for use in direct transfusions and especially for immediate protection while first plasma supplies are being processed in Lewiston Drs Joelle C Hiebert and Julius Gottlieb, medical superintendent and pathologist, respectively, of the Central Maine General Hospital, and William Dameshek, assistant professor of medicine at Tufts College Medical School and chief of the Blood Climc at the New Fingland Medical Center, are in charge of the program hospitals in the Lewiston network include

cospitals in the Lewiston network include Central Maine General Hospital Lewiston St. Mary's General Hospital, Lewiston Augusta General Hospital, Lewiston Augusta General Hospital Bath Memorial Hospital Brunswick Hospital Camden Community Hospital, Rockland Rumford Community Hospital, Rockland Rumford Community Hospital, Rockland Redington Memorial Hospital, Skowhegan Sisters Hospital, Waterville Thayer Hospital, Waterville Thayer Hospital, Waterville Thayer Hospital, Pomariscotta Franklin County Memorial Hospital Farmington St. Andrews Hospital Boothbar Harbor

### MARYLAND

Dr. Hugh Young to Retire—Dr Hugh H Young, professor of urology, Johns Hopkins University School of Medicine, Baltimore, and director of the Brady Urological Institute of Johns Hopkins Hospital, Baltimore, will retire at the end of the present academic year, June 30, with the title professor emeritus of urology. He will retain offices in the Brady Institute Dr Young graduated at the University of Virginia Department of Medicine, Charlottesville, in 1894. He has been associated with Johns Hopkins since 1895. In 1909 he was president of the American Association of Genito-University Surgeons and of the American Urological Association and of the Medico-Chirurgical Faculty of Maryland in 1911. In 1917. Dr. Young was director of urology of the American Expeditionary Forces, becoming senior consultant in 1918. In 1929 he was named chairman of a state aviation committee which had been provided for by the legislature. In 1941 he was one of four recipients of the first award of the septemnal prize of the Amory Fund for contributions to treatment and cure of diseases of the genitourinary system. The fund is distributed through the American Academy of Arts and Science.

### MISSOURI

Dinner for Honorary Members—The Jasper Counts Medical Society recently gave a dinner for its honorary members, Drs Robert L Neft, Robert M James and William S Loveland, Joplin, and Everett Powers, Carthage Dr. William R Gaddie, Duenweg, also an honorary member, died on January 11.

The Carman Lecture.—Dr Leo George Rigler, professor of radiology, University of Minnesota Medical School, Minneapolis, delivered the annual Russell D Carman Lecture in St Louis, February 24, under the auspices of the St Louis Society of Radiologists His subject was "Roentgenological Diagnosis of Acute Abdominal States"

Memorial for Pioneer Physician—On March 28 a grante headstone was unveiled at the grave of Dr Joseph Nashe McDowell in Bellefontaine Cemeters. The stone was made possible by the contributions from about two hundred physicians and is a memorial from the class of 1895 of Missouri Medical College, St Louis. The stone was unveiled by Miss Rebecca Duane Mastin daughter of Dr and Mrs Edward V M Mastin St Louis, and great-great-great-granddaughter of Ephraim McDowell the uscle of Joseph Nashe McDowell Philip A Shaffer Ph D, denn of Washington University

School of Medicine, and George R Throop, Ph D, chancellor of the university, spoke at the ceremonies Dr McDowell came to St Louis from Cincinnati, where he had been associated in the Cincinnati College of Medicine He established the medical department of the Kemper College, later changed to the Missouri Medical College

# NEBRASKA

Personal.—Dr James A Burford has resigned as supermendent of the Nebraska Institution for Feebleminded at Beatrice, Harold Peterson, secretary of the state board of control, is the new supermendent—Dr Charles L Fahnestock, Lincoln, was appointed supervisor of the state WPA public health projects on February 1

Course on Obstetrics and Pediatric Care.—A scrics of lectures on obstetrics and pediatrics will be held at different centers throughout the state from April 13 to April 24 under the auspices of the state medical association and the state department of health Lecturers will be Drs Norman R. Kretzschmar and Harry L. Towlsey, associate professors of obstetrics and pediatrics, respectively. University of Michigun Medical School, Ann Arbor. The series will open in Alliance on April 13 and continue at the following places. Scottshliff. April 14, North Platte, April 15. McCook, April 16, Grand Island, April 17, York April 20, Fremont April 21; Norfolk April 22, Nebraska City, April 23, and Falls City, April 24.

# NEW JERSEY

Immunization Program —Maich 30 marked the start of a program among preschool children in Newark for the administration of a serum designed to provide simultaneous immunization against diphtheria and whooping cough, according to the New York Times Trial tests for a period of eighteen months carried out by Dr. Henry Simon, head of the respiratory bureau of the city department of health, were said to be beneficial to 840 children. The Times reported that there have been no deaths from diphtheria in Newark during the last two years during the city's concentrated immunization program. Among the 2000 children afflicted with whooping cough annually there are an average of eight deaths. The service is to be free but parents desiring to do so may take the children to family physicians.

NEW YORK

Course on Sulfonamide Therapy.—The Medical Society of the State of New York and the state department of health have arranged a course of three two hour sessions on sulfonamide therapy for the Orange County Medical Society, to be be given at the Elizabeth A. Horton Memorial Hospital Middletown. On May 12 Drs. Alexander D. Langmur, Peeks kill and Frank Glein, New York, will discuss Beliavior of Sulfonamides in the Body and Principles for Their Use, and "Local and Internal Use of Sulfonamides in Surgery. On May 19 Drs. Thomas F. Laurie, Syracuse, will speak on "Treatment of Genitourinary Infections in the Male" and Robert Gordon Douglas New York. Sulfonamides in Obstetrics and Gynecology." On May 26 Drs. L. Whittington Gorham, Albany, and Harry Bakwin New York will discuss "Treatment of Pneumonia" and 'Treatment of Meningitis' respectively.

The Seventh Harvey Lecture—Dr Philip D McMaster of the Rockefeller Institute for Medical Research will deliver the seventh Harvey Society Lecture of the current series at the New York Academy of Medicine, April 16 He will speak on 'Lymphatic Participation in Cutancous Phenomen'

Fund for Psychiatry.—Under the will of the late Dr Menas S Gregory, New York University College of Medicine has received a fund of \$40,000. Twenty thousand dollars will be used to establish an annual lectureship and the remaining \$20,000 will be given toward the endowment of a professorship in the department of psychiatry. Dr. Gregory was for many years professor of psychiatry at the medical school

Musical Society.—The Doctors Musical Society of Pro-Isyn will offer its sixth concert at the Grand Bullroom of the Hotel St. George, Brooklyn May 13 under the nutries of the Medical Society of the County of Kings and the Acade 13 of Medicine of Brooklyn Committee on Social Activity 13 cooperation with the Hotel St. George Principles will 10 to the mobile canteen unit for Brooklyn Myron Leate vill conduct

### OHIO

Physician Named to Welfare Post.—Dr. Charles T. Dolezal, assistant clinical professor of medicine, Western Reserve University School of Medicine, has been appointed welfare director of Cleveland. According to the state medical journal, this is the first time that a physician has been named to the position. Dr. Dolegal graduated at Western Personnel. to the position. Dr. Dolezal graduated at Western Reserve in 1926.

Dr. Bigelow Named Acting Dean at Ohio State.-Dr. Leslie L. Bigelow, clinical professor of surgery at Ohio State University College of Medicine, Columbus, has been appointed acting dean of the school. He succeeds Dr. Hardy A. Kemp, dean since Sept. 1, 1941, who as a major in the medical reserve corps of the U. S. Army has been called into active service at the Army Medical School, Washington, D. C. Dr. Bigelow has been a member of the faculty at Ohio State since 1914; he was named to his present professorship in 1938. He formerly served as president of the Columbus Academy of Medicine and the Ohio State Medical Association. Dr. Kemp will teach tropical diseases at the Army Medical School, it is reported.

State Medical Meeting in Columbus.-The Ohio State Medical Association will hold its ninety-sixth annual session at the Neil House, Columbus, April 28-30, under the presidency of Dr. Harry V. Paryzek, Cleveland. The program includes the following out of state speakers:

Dr. Chester S. Keefer, Boston, Chemotherapy.
Dr. Frederick A. Coller, Ann Arbor, Mich., Simplified Parenteral Feeding Before and After Operation.
Dr. Richard H. Freyberg, Ann Arbor, Recent Trends in the Treatment of Rheumatoid Arthritis.
Dr. William G. Lennox, Boston, New Light on Epilepsy and Migraine.
Dr. Alson E. Braley, New York, Sulfonamides in the Treatment of Ocular Infections.
Dr. Linsley R. Harris n. Winston, Salem, N. C. Hypertension: Some

Dr. Tinsley R. Harris n, Winston-Salem, N. C., Hypertension: Some Recent Advances.

Dr. Leonard G. Rowntree, Colonel, M. C., U. S. Army, Washington, D. C., Health and National Defense.

Edmind V. Cowdry, Ph.D., St. Louis, Factors in Aging of the Human

Dr. Frank H. Krusen, Rochester, Minn., Physical Therapy in General Practice.

Dr. Merrill C. Sosman, Boston, Observations on Curable Heart Disease.
Dr. John H. Lawrence, Berkeley, Calif., Clinical Applications of Artificial Radioactivity.

A feature of the meeting will be "quiz discussion" sessions covering chemotherapy, preoperative and postoperative care, nervous and mental diseases, nutrition and national defense, technical phases and clinical applications of plasma transfusions, general medical problems and physical therapy, including x-ray, radium and radioactive isotopes. There will be a continuous rogram of medical motion pictures. At the annual banquet Thursday evening Roderick Peattie, Ph.D., geographer and author and professor of geography, Ohio State University, Columbus, Ohio, will speak on "The Significance and Limitations of Geopolitics." The woman's auxiliary to the state medical society will meet on April 29 and 30. Other meetings will include the Ohio section of the American College of Chest Physicians, April 29, and a joint meeting of the Ohio Society of Anesthetists and the Ohio section of the American Society of Anesthetists, Inc., April 30.

#### OKLAHOMA

State Medical Meeting in Tulsa.-The Oklahoma State Medical Association will hold its fiftieth annual session at the Coliscum, Tulsa, April 22-24, under the presidency of Dr. Finis W. Ewing, Muskogee, and with the Tulsa County Medical Society acting as host. Included among the speakers will be the following:

Dr. Charles C. Dennie, Kansas City, Mo., Treatment of Pregnant Syphilitic Women and the Results of Treatment.

Dr. George R. Hertmann, Galveston, Texas, Functional Heart Disorders, Including the Soldier's Heart.

Dr. Morris Edward Davis, Chicago, The Endocrines in Obstetrics and Gynecology.

Dr. Algernon R. Perce.

Algernon B. Reese, New York, Exophthalmos Associated with

Dr. Algernon Thyroid Disease. C. Buro John C. Burch, Nashville, Tenn., Physiologic Approach to Gyne-

Tuberculosis.
Dr. Robert L. Sanders, Memphis, Tenn., Carcinoma of the Colon.
Dr. Titles H. Harris, Galveston, Complications Following the Use of

Pr. Thomas Leon Howard, Denver, Malignancy of the Bladder and Prostate with Reference to New Methods of Treatment.

The guest speakers will address both sectional and general sessions. A feature of this year's meeting will be a round table on sulfonamide therapy, in which all the guest speakers will participate.

## PENNSYLVANIA

Personal.-Dr. Jeremiah Fletcher Lutz and Dr. Francis R. Wise of York have been appointed chairman and co-chairman, respectively, of Emergency Medical Service of York and York County.

Philadelphia

Immunization Program in Scarlet Fever Outbreak .-New clinics for the immunization of children against scarlet fever are being established throughout the city to cope with the disease which has been epidemic for several weeks, newspapers report. The city department of health has augmented its staff with the appointment of Dr. Harry Strieb as immunologist. Two other physicians and ten nurses have also been added to assist in the outbreak. Fifty-five new cases on March 21 brought the total for the year up to 2,036 and for the month of March to 878.

Dinner to Dr. Babcock .- Dr. William Wayne Babcock, since 1903 professor of surgery and clinical surgery, Temple University School of Medicine, was guest of honor at a dimer, March 26, given by citizens of Philadelphia, trustees of Temple University and the faculty and alumni of the medical school as an "expression of appreciation of Dr. Babcock's accomplishments and contributions to Temple University, Temple University Medical School, and the city of Philadelphia." Participating in the dinner were the Babcock Surgical Society, the Nurses Alumni Association and the city of the latest the contract the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the city of the latest and the latest and the the Nurses Alumni Association and the entire student body of the medical school. Dr. Babcock has been affiliated with various institutions in Philadelphia since 1895.

Society News.-Dr. Francis L. Lederer, Chicago, discussed "Signs and Symptoms of Labyrinthitis—Their Surgical Impli-cations" before the Philadelphia Laryngological Society March cations" before the Finlaucipina Latyngological Society March 10.—The Philadelphia Psychiatric Society was addressed, March 13, by Dr. Francis J. O'Brien, New York, on "Psychiatry in Education."—The Pathological Society of Philadelphia was addressed, February 12, by Drs. Baldwin H. E. W. Lucke and Hans G. Schlumberger on "Tumors in Cold Blooded Actions of Experimental Material for Studies on Membrais" Animals as Experimental Material for Studies on Neoplasia" and Dr. Dale Coman, "Human Neoplasma in Tissue Culture." All are of Philadelphia.—Dr. Louis Chargin, New York, among others, addressed the Philadelphia County Medical Society, February 11, on "Massive Dose Arsenotherapy in Syphilis."

#### TENNESSEE

New Professor of Pediatrics,-Dr. Walter Henry Maddux, now completing graduate studies at Yale University School of Medicine, New Haven, has been appointed professor of pediatrics at Meharry Medical College, Nashville, newspapers report. Dr. Maddux graduated at Rush Medical College, University of Chicago, in 1923.

State Medical Meeting in Memphis.-The Tennessee State Medical Association will hold its annual session at the Peabody Hotel, Memphis, April 14-16, under the presidency of Dr. Hiram A. Laws, Chattanooga. According to a preliminary program, the following guest speakers will participate:

rogram, the following guest speakers will participate:

Dr. Robert J. Reeves, Durham, N. C., Diagnosis and Treatment of Pulmonary Fungous Infection.

Dr. James S. McLester, Birmingham, Ala., Nutrition and Defense.

Dr. Carl M. Peterson, Chicago, Secretary, Council on Industrial Health, American Medical Association, Industrial Health and the Practicing Physician.

Dr. C. Anderson Aldrich, Winnetka, Ill., Ancient Processes in a Scientific Age—Feeding Aspect.

Dr. Fred Rankin, Lexington, Ky., President-Elect, American Medical Association (subject not announced).

Dr. Edgar H. Greene, Atlanta, Ga., The Procurement and Assignment Service.

Other groups meeting simultaneously with the state society are the Tennessee Academy of Ophthalmology and Otolaryngology and the Tennessee State Pediatric Society. Dr. William A. Garrott, Cleveland, will be guest speaker before the ophthalmologic group. **TEXAS** 

Medical Officer Prisoner of War.-Dr. Gustav Mason Kahn, Galveston, medical officer, U. S. Navy, stationed at

Lake Island, is reported to be a prisoner of war, according to the Galveston News. Dr. Kahn graduated at the University of Texas Faculty of Medicine in 1932.

Changes of Health Personnel. - Dr. Paul L. Wermer, Gilmer, has been named health officer of Upshur County. Dr. Stephen W. Wilson, Gilmer, was recently chosen director of the new city health unit at Atlanta. Dr. Hatch W. Cummings is the new health officer of Hearne.—Dr. William B. Patterson, Brownfield, is the new director of the five county lealth unit serving Dawson, Hockley, Yoakum, Gaines and Terry counties, with headquarters in Brownfield.

### GENERAL

Special Society Election.—Dr. Herman C. Pitts, Providence, R. I., was elected president of the American Society for the Control of Cancer at its annual meeting in New York in March. Other officers are Dr. Frank E. Adair, New York, vice president; Dr. Cornelius P. Rhoads, New York, secretary; James H. Ripley, New York, treasurer, and Clarence C. Little, Sc.D., Bar Harbor, Maine, managing director.

Meeting of Gastroscopic Club.-The recently organized American Gastroscopic Club will hold its first annual meeting in Atlantic City, June 7, with headquarters at the Hotel Claridge, when the following program will be presented:

Jaridge, When the following program will be presented:
Dr. Rudolf Schindler, Chicago, Introduction—On Chronic Epigastric Distress and on the Anatomic Foundation of Chronic Gastritis.
Dr. Crawford F. Barnett, Atlanta, Gastroscopic and Clinical Symptoms of Chronic Superficial-Atrophic Gastritis.
Dr. Edward B. Benedict, Boston, Gastroscopic and Clinical Symptoms of Chronic Hypertrophic Gastritis.
Dr. George B. Eusterman, Rochester, Minn., Clinical Significance of Chronic Gastritis.
Dr. Seymour I. Gray, Chicago. Epigastric Symptoms in Alcoholics With

Chronic Gastritis.

Dr. Seymour J. Gray, Chicago, Epigastric Symptoms in Alcoholics With and Without Gastritis.

Dr. John Tilden Howard, Baltimore, Gastroscopic Findings in Cholecystectomized Patients.

Dr. John L. Kantor, colonel, M. C., U. S. Army, New York, Significance of Chronic Dyspepsia for the Army in World War I. Dr. Rubin L. Gold, captain, M. C., U. S. Army, San Francisco, Gastroscopic Findings in Chronic Dyspepsia in the Army.

Dr. Frank B. McGlone, captain, M. C., U. S. Army, Denver, Incidence of Gastritis in Draftees, Soldiers and War Veterans.

Courses in Kenny Treatment of Paralysis .- A series of courses in the Kenny method of the treatment of early poliocourses in the Kenny method of the treatment of early poliomyelitis will be conducted in Minneapolis under the supervision of Dr. Miland E. Knapp, director of the department of physical therapy, University of Minnesota Medical School, Minneapolis. The courses will be financed by the National Foundation for Infantile Paralysis. They have been arranged for physicians, registered physical therapy technicians, nurses with responsible positions in teaching institutions and nurses in key positions in large contagious disease hospitals. The classes will be repeated at various times in the next six to twelve months. The physicians' course is to be of one week's duration and limited to fifteen physicians although it will be duration and limited to fifteen physicians although it will be repeated from time to time as the demand requires. course for nurses from contagious disease hospitals is also of one week's duration. The course for registered physical therapy technicians, preferably technicians who have also had nurses' training, and for nurses in teaching institutions is of two to six months' duration. It is recommended that each institution contemplating the inclusion of the Kenny treatment in its program send a physician, a technician and a nurse for training. Inquiries concerning fees and dates of courses should be sent to the Director, Center for Continuation Study, University of Minnesota, Minneapolis.

Report of Rockefeller Foundation.-More than \$9,000,000 was appropriated by the Rockefeller Foundation during 1941, mainly in the six major fields of public health, medical sciences, natural sciences, social sciences, humanities and program in China. The work in public health received the largest appropriation. \$2,450,000. Medical sciences was second with \$2,120,000. Of the money spent, 7.4 per cent was for work in the United States and 26 per cent for work in other countries. The largest appropriation made by the foundation in 1941 was \$600,000 toward the endowment of the department of public health and preventive medicine of Cornell University Medical College, New York. During the year the Rockefeller Foundation supported four hundred and twelve fellowships for citizens of thirty-four different countries at a cost of \$594,000; one hundred and eighty-one persons studied in countries other than their own. Fellowships for Latin Americans increased by 52 per cent over 1940; fellowships for Europeans, already at a low figure in 1940, decreased by 40 per cent. The fields represented in the two hundred and seventy-six fellowships administered directly by the foundation were public health one hundred and seven, public health nursing twenty-two, medical sciences fifty-three, natural sciences eighteen, social sciences twenty-six, humanities forty-one and the program in China nine, not including local fellowships for study in China. Two thousand three hundred and seventy-eight applications for financial aid were declined.

The foundation distributed 1,938,300 doses of yellow fever vaccine to the United States government and 1,972,380 doses to Africa. Including the total that went to India, Brazil and Singapore, the foundation gave a grand total of 4,260,680 doses Singapore, the foundation gave a grand total of 4,200,080 doses of its own manufactured yellow fever vaccine. At the request of the army and navy, several million more doses will be distributed this year. Reflecting the action of the war on its activities, the foundation closed its Paris office in June 1940 and its Lisbon office in July 1941. There are now no foundation representatives on the continent of Europe, but an office is being maintained in London. Late in 1940 the Far Eastern office was moved from Shanghai to Manila. Peiping Union Medical College was closed by the Japanese authorities carly in 1942 and the leading members of the staff were interned.

Emphasis is being placed on studies of malaria, typhus and yellow fever. In Trinidad, where malaria is the most urgent health problem, a study is being made in the civilian population. Another malaria project is on the Burma Road. A laboratory has been established directly on the road, and under war circumstances the project has encountered difficulties. A new technic was developed for measuring antibodies in the blood before and after vaccination for influenza, and eleven different types of vaccines have been prepared and tested in human volunteers. Special studies have been carried out in nutrition. One project was instituted in England in 1941 with the Ministry of Health and the Oxford Nutrition Survey.

The foundation gave \$110,000 to the American Library Association to forestall the growth of serious gaps in the files of

charton to forestail the growth of serious gaps in the mes of American scholarly journals in the libraries of war affected countries. A grant in aid was also given to expedite the flow of similar material from Europe to the United States.

The foundation appropriated \$168,000 to the National Research Council to establish the Welch Fellowships in honor of the late Dr. William Henry Welch, Baltimore. This program will support a plan of senior followships in internal meligram will support a plan of senior fellowships in internal medicine, offering long training and adequate stipends to carefully selected men from 30 to 40 years of age. Stipends will not exceed \$6,000 annually; in addition, allowances not to exceed \$1,000 a year will be made for equipment and technical assistance. The first appointment will be for a period of three years, and subsequent appointment will be at the discretion of the council up to a total term of six years for each fellow. Fellowship holders will be free to move to the clinics best equipped to train them.

To develop a center in the United States for the study of tropical diseases, the foundation in 1941 gave \$200,000 to the Tulane University of Louisiana School of Medicine, New Orleans.

### LATIN AMERICA

New Public Health Journal.-The Revista do Instituto Adolfo Lutz, the official journal of the Central Laboratory of Public Health of São Paulo, has made its appearance. The first issue was dated July and the second December 1941. Dr. José P. Carvalho, Lima, is editor of the journal. The institute which the new publication serves bears the name of the late Adolfo Lutz, Rio de Janeiro, who for many years was the director of the Institute Bacteriológico of São Paulo, which was later transformed into the Central Laboratory of Public Health.

National Tuberculosis Committee.—A National Committee was recently organized in Argentina for the government campaign against tuberculosis. It will have headquarters in Buenos Aires and will direct and intensity the national crusade against tuberculosis. It will also manage the various problems related to the control of the disease in the country. Drs. Alejandro A. Raimondi and Rodolfo A. Vaccarezza, professors at the Faculty of Medicine of the University of Buenos Aires, were appointed president and secretary, respectively, of the National Committee against tuberculosis.

### CORRECTIONS

St. Francis Hospital.—In the Hospital Number of THE JOHRNAL, March 28, page 1088, the symbol * indicating approval for residency, intended for St. Francis Hospital, Wichita, Kan, was mistakenly placed on St. Francis Hospital, Topeka, Kan.

Milk Borne Outbreak of Septic Sore Throat .- In a news item in The Journal, March 28, page 1151, reporting an outbreak of septic sore throat, the last sentence of the story should have read: Strains of hemolytic streptococci belonging to Lancefield serologic group A were isolated from the milk of the injured cow, from throat cultures from the milk handler and from a number of patients.

Barre City Hospital, Barre, Vermont.—In the Hospital Number of The Journal, March 28, page 1126, Barre, Vermont, and its hospital facilities were by typographical error placed under Utah. Barre, a city of 10,909 population in Washington County, has the Barre City Hospital, gen., N. P. Asin., 60 beds, average census of 50; 15 bassinets; 322 births; 2,643 admissions; approved by American College of Surgeons and State Board of Nurse Examiners. Also Washington County Tuberculosis Sanatorium, state owned; 47 beds; average census of 42; 64 admissions. Both fully registered and not 'ated institutions. Barre City Hospital, Barre, Vermont.-In the Hospital

# Foreign Letters

#### LONDON

(From Our Regular Correspondent)

Feb. 21, 1942.

# Reduction in the Medical Staff of Hospitals

The minister of health has decided to reduce the medical staff of hospitals so as to provide more medical officers for the fighting forces. Whole time members of the staff are to be reduced by 15 per cent in London and by 10 per cent in the provinces. In the teaching hospitals the reduction will be smaller. In a circular the minister points out that this lowering of the numerical standard of staffing in hospitals calls for a maximum degree of cooperation between hospitals in time of pressure. He has therefore instructed his medical officers in each civil defense region to work out plans whereby hospitals heavily pressed by air attack or exceptional incidence of sickness in the locality can be given relief by other hospitals. Some arrangements of this kind already exist but the minister wants them to be general and on a clearly defined basis. He has in mind the allocation of specified officers in each hospital for temporary transfer in case of need. The period of transfer would usually be short, perhaps not more than a week. The arrangement should also include nurses.

### American Hospital Built to Withstand Air Raids

The new Churchill Hospital is to be opened at Oxford. It will be administered by a group of American surgeons who arrived in England on the first day of the air raids on London. The hospital was built in 1941 and therefore is the first to be built with the horrors of modern warfare in mind. It is so designed that a bomb could do no great damage to the hospital as a whole. The wards are built round a courtyard, each ward having its own air raid shelter. Six hundred patients can be accommodated. The staff comprises twelve American doctors and fifty American and Canadian nurses. Its main function will be reconstruction, of which the two branches will be orthopedic and plastic. A medical service and other types of surgery will be provided as necessity arises. After the war it is intended, if possible, to keep the hospital as a permanent American hospital in relation with the Oxford Medical School. It is hoped that a similar British organization may be initiated in relation with a university in the United States.

# War Injuries of the Eye

The indiscriminate bombing of cities has produced many cases of injury to the eye. At a meeting of the Section of Ophthalmology of the Royal Society of Medicine Mr. T. M. Tyrrell opened a discussion on the subject. He found that peace time methods of treatment did not apply well in war time. Some of the cases he had been unable to deal with at once and then learned the possibility of leaving a badly injured eye for twenty-four hours and getting a good result. He found in several cases that it was easier to deal with those which had to wait, and consequently he purposely began to leave patients unoperated on and found that results were apparently better. In the past he had been impressed by the degree of shock and restlessness of patients with perforating injuries and the need for a good seventh nerve block before thorough examination or operation. After the lapse of time the shock passes off and the patient is in a better condition to stand operation. This applies with even more force to air raid casualties in which there is more shock than in civil cases of eye injury. The dirt appears to have been blown deep into the skin and the conjunctival sacs are usually filled with a slimy mudpie of mucus and dirt. It is well to subject all these eyes to two or three hourly irrigations with an alkaline lotion before any operative intervention and at the time of operation to irrigate the conjunctival sac with 2 per cent silver nitrate long enough to produce a slight white film over the cornea. This forms a protective coat over particles which may be embedded in the cornea or conjunctiva and helps to prevent infection.

In nonpenetrating injuries all glass must be picked out of the conjunctival sac. Nearly all wounds of the lids become infected. Mr. Tyrrell cleans them with hydrogen peroxide and cuts out all obviously damaged tissue unlikely to survive. When there are multiple corneal foreign bodies he does not touch them. These patients are soon comfortable if the pupils are kept well dilated with oily atropine 0.5 per cent and later with "paroleine drops." The foreign bodies rapidly fall out, and any left can be picked out later.

Glass injuries are the chief bugbear of air raids. To prevent them, firemen and fire watchers should have a protective visor. It is very difficult to see glass even with a slit lamp and more difficult to extract. Fortunately in most cases glass works its way out even from the depths of the wound. Most glass injuries are so liberally peppered with small fragments that any attempt to roentgenograph them in looking for an intraocular fragment fails because of the cloud of other small pieces. In cases of a piece of glass lodged in the eye which shows no tendency to come out, the only indication for operation is interference with vision in an otherwise useful eye. Mr. Tyrrell has had about twenty severe glass injuries and has had to remove ten eyes too pulped to be saved. In the majority of the others, glass had perforated the cornea or sclera and fallen out again, and all that was necessary was a clean up, iridectomy and conjunctival flap.

# The Effect on the Kidney of Limb Compression

In a previous letter a new syndrome—renal failure produced by prolonged compression of limbs by débris of buildings fallen during air raids—was reported. In a discussion at the Section of Surgery of the Royal Society of Medicine the president, Mr. E. Rock Carling, said that so far the war had furnished few new surgical problems, but an outstanding observation was the grave and often fatal damage to the kidneys after prolonged compression of the limbs. It was impossible to believe that a similar syndrome had not been associated with injuries in civil life, such as mine accidents. Little had appeared on the subject in English literature, but cases had been found in German literature.

Dr. J. McMichael said that the breakdown of autolytic products from dead or dying muscle seemed to be the main factor in damaging the kidneys. Some chemical substance was liberated and poisoned the tubule cells. There was also a tubule blockage, possibly from precipitation of myohemoglobin in the tubes. In crush injuries the kidney should be thought of from the first. The mistake had been made of waiting until about the third day, when renal damage was already severe, before treating the renal condition. It should be impressed on rescue parties that in persons pinned down by the limbs under wreckage the danger was renal failure. Therefore it was important to insure good diuresis, particularly about the time the injured were due to be released from pressure. Every effort should be made by means of abundant warm drinks to secure a good urinary flow. The diuresis would dilute the chemical substances within the renal tubules and perhaps prevent precipitation of myohemoglobin casts. Once the victim was released the circulation was likely to be flooded with toxic products, and therefore a more rational method of treatment was necessary. He did not think that any severe additional damage would be produced by the immediate application of a tourniquet. It should be applied to the limb above the site of crushing. When the patient reached the hospital the circulation through the limb should be restored only when good diuresis was established. Gradual release of the circulation might be attempted

by replacing the tourniquet by the sphygmomanometer cuff and slowly deflating. Possibly the limb vessels were already in spasm, so that these measures would achieve little. Another expedient was to pack the limb in ice so as to reduce the blood flow through the limb and diminish the rate of tissue breakdown, dependent on the action of enzymes, which acted best at about hody temperature. The next point was alkalization of the blood or urine, because these patients tended to have a low alkali reserve. Administration of alkalis in quantities sufficient to make the urine alkaline was rational. Sodium bicarbonate and citrate should be given by mouth in quantities of 200 to 300 grains (13 to 20 Gm.) daily. The use of the sodium salt was important, because the high concentration of potassium in the blood of these patients might be one of the fatal biochemical factors. Good diuresis, of course, could not be maintained in the presence of circulatory collapse, and shock should be treated by serum or plasma transfusion. In our present state of knowledge these suggestions were only tentative.

### The Bread Controversy

The adoption of white bread seems to have been a blunder. Reform is far from easy and the way is blocked by public taste. In a letter to the Times, Lord Bledisloe, minister of food, says that an unfortunate development of democracy is that the taste of the proletariat, however nocuous, becomes reflected in large scale industrial enterprise. No better illustration can be given than the craze for the white loaf because it is white, light and relatively durable, and the response to it by the modern steam roller mills eliminating from our bread the appetizing germ and the finer skins of the wheat grains with their minerals and vitamins.

The policy of the minister of food continues to be severely criticized in the Times and in the medical journals. Sir Wyndham Dunstan attacks his decision to fortify the white loaf with manufactured vitamin B1 and calcium. The expense is \$6,250,000, which is to be spent on the manufacture of the vitamin and \$5,000,000 on distribution and incorporation in the daily bread supply. This reinforced bread is unnecessary, now that the standard wheatmeal loaf is available. Dr. Harris. Director of the Institute of Research for the Prevention of Disease, writes that calcium taken in excess affects the function of the kidneys and may easily prove a factor in hardening of the arteries. To put it at its lowest, the addition of calcium to bread would mean that forty million people would be used as experimental rabbits. That redoubtable controversialist Sir Ernest Gordon Graham-Little (dermatologist and member of Parliament) still maintains that the recommendations of the Medical Research Council for the new national loaf of 85 per cent extraction (against the usual 73) should not be carried out. Though there may be 85 per cent extraction, the flour is often still deprived of practically all the germ. Graham-Little says that "95 per cent of the flour controlled by the ministry is deprived of all its wheat germ and is chemically bleached, flouting the two principal recommendations of the Medical Research Council."

# Nurseries for Children of War Workers

A large number of women are now engaged in war industries, and many of them are married and have young children. The London Women's Parliament has decided to send a deputation to the ministers of health and of education to emphasize the need for the provision of nurseries for war workers' children. Many mothers with recent factory experience are eager to return to work but have no one to take care of their young children. The solution is the rapid establishment of war time nurseries in large numbers and big extension of residential nurseries, preferably in reception areas.

# Precautions Taken Against Typhus Fever

Typhus fever is ravaging a large part of Europe, including the eastern war front, Poland, the Baltic states, Germany, the Ukraine and Spain. It has also appeared in northern Africa. The British government has already taken precautions, which include arrangements for the supply of vaccine and the setting up of laboratories in the Middle East. On the home front the public health services have made preparations by which local authorities could carry out immediate large scale inoculation. At the ports, precautions have been taken to prevent the spread of the disease to this country.

### PARIS

(From Our Regular Correspondent)

Feb. 21, 1942.

# The Treatment of Epilepsy with Phenytoin

Prof. Charles Baudouin, dean of the faculty of medicine in Paris, read a paper before the Academy of Medicine, March 4, 1941, on the treatment of epilepsy by means of phenytoin sodium. During a trip to the United States in November 1937 he visited the medical services of Drs. Tracy J. Putnam and H. Houston Merritt in Boston, where he became acquainted with the new antiepileptic medicament. Drs. Merritt and Putnam in the Sept. 17, 1938 issue of THE JOURNAL published an article entitled "Sodium Diphenyl Hydantoinate in the Treatment of Convulsive Disorders." The product, introduced as dilantin in the United States, is known in Europe as epanutin. Professor Baudouin's experimentation with this product in 1940 was resumed by means of a French firm's product, using phenytoin and its sodium, calcium and magnesium salts. Professor Baudonin prefers the use of phenytoin itself because, compared to its derivative sodium, it is insoluble in water and unalterable in air. By administering from 0.3 to 0.5 Gm. daily as a cachet or as a compressed tablet of 0.1 Gm. to 13 patients he has not observed any nervous sequels, vertigo or digestive troubles. An erythrodermia was observed, but it quickly vanished after discontinuance of the drug. Of 13 epileptic patients 12 were resistant to phenobarbital or bromide treatment. In 5 grand mal cases three good results and one failure were observed. Among the 6 patients having petit mal attacks one excellent result, one good one, two improvements and two failures were observed. Professor Baudouin proposes not to omit phenobarbital entirely while treating epilepsy with phenytoin. Good results have been generally obtained by the combination of 0.1 to 0.15 Gm. of phenobarbital with 0.3 Gm. of phenytoin. Phenytoin is less hypnotic than phenobarbital.

# Depressive Cardiovascular Action Caused by Phenytoin

At a meeting of the Academy of Medicine on July 8, 1941 Professor Baudouin reported an experiment on dogs with intravenous injections of phenytoin and its sodium derivative. The action of phenytoin and phenytoin sodium proved to be identical. In doses of 0.005 Gm. per kilogram a slightly depressive cardiovascular action can be observed. This inhibitory action is more evident at the auricle than at the ventricle (electrocardiogram). The arterial pressure is lowered and slackening of the rhythm until momentary cessation of heart action can be observed. Up to a dose of 0.02 Gm, these actions are temporary and reversible. Injection successively of the total dose of 0.04 to 0.06 Gm. may cause death. To this vagomimetic action, which is probably of central origin, a directly depressive muscular effect is still added. After the vagus has been cut, phenytoin always proves to be inhibitory. No changes are seen when sparteine is administered. Certain ealcium salts, however, which affect the muscles directly as cardiotonics fight efficiently against the depressive action of phenytoin. Intravenous injections of this medicament to human beings are not leasible.

MARRIAGES 1313

# BUENOS AIRES

(From Our Regular Correspondent)
Feb. 25, 1942.

## Tuberculosis

Dr. Luis Sayé of Buenos Aires recently read a paper in which he discussed tuberculosis, which continues to be a main cause of mortality in all countries of the world except five or six. The epidemic cycle of the disease from acute to attenuated forms lasts from thirty to more than one hundred years. The curve of mortality follows three different patterns for the three different phases of (1) tuberculization, (2) relative stabilization of the disease with slow diminution of the curves of mortality and (3) rapid diminution of the curves. The highest rate of mortality corresponds to patients of about 30 years of age. There are malignant clinical forms with a tendency to generalization of the disease. This epidemiologic phase predominates in Portugal, Greece, the northern, central and southern regions of Africa, Asia, Oceania, Venezuela, Brazil, Ecuador, Peru, Chile. Colombia and Bolivia. In the phase of relative stabilization of the disease the rate of mortality from tuberculosis varies between 10 and 16 per 10,000 people. Switzerland, Finland, Belgium, France, Spain, Italy, Argentina, Uruguay, Mexico and Cuba had tuberculosis in this phase in 1937-1938. In the phase of rapid diminution of the disease the rate of mortality from tuberculosis varies from 4 to 10 per 10,000 people. The frequency of this type of tuberculosis in infants and school children is rare. Complete infection is exhibited in patients between the ages of 40 and 50. The curve of mortality in men and women is similar. The age of greatest mortality for either men or women is between 40 and 80 years. England, Sweden, Norway, Denmark, the Netherlands, Germany, the United States, New Zealand and Australia had tuberculosis in this phase in 1937 and 1938. The results of crusades against tuberculosis show how much can be expected from work on prevention of the disease when it is carried on properly and in proportion with the needs. The good results obtained in preventing tuberculosis in the United States by controlling the diseases in cattle are recognized.

In countries in which well coordinated crusades on public hygiene are carried on, as is the case in Venezuela, the intensification of work for prevention of tuberculosis will cause a rapid lowering of the endemic curves of the disease.

In the United States, the Netherlands, Denmark, New Zealand and Australia the incidence of tuberculosis has greatly diminished in the last ten years. One wonders whether the disease will disappear from those countries within the coming twenty years. The insufficient results of antituberculosis crusades are shown by the frequency of tuberculosis in women between the ages of 16 and 35. Roentgenograms have been systematically taken of several thousand persons who lived in the poor districts of New York and Chicago in the course of antituberculosis crusades. It is found that tuberculosis is frequent among adolescents, Negroes and industrial workers who live in poor districts of large cities. The results of this research indicates the advisability of complementing the antituberculosis crusades (1) with the administration of antituberculosis vaccines to noninfected persons, (2) by carrying on periodic roentgen examinations of the thorax of persons exposed to tuberculosis and, if possible, of the thoraces of persons of the entire city and (3) by controlling tuberculosis in birds, hogs and other animals.

# REHABILITATION OF TUBERCULOUS PATIENTS

Drs. F. Etcheverry Boneo and L. L. Silva recently published an article in the Revista de Kinesiología on the importance of medical gymnastics in rehabilitating patients after clinical cure of pulmonary tuberculosis. The exercises begin after discontinuation of prolonged rest and progress as follows: The patient, sitting on a chair, performs mild movements of relaxa-

tion of the muscles of the neck, thorax and arms, with closed eves. He moves first the fingers, then the hands, forearm, elbow, arm and head. He breathes according to the rhythm of certain sounds. The exercises are performed for five minutes every other day for one month. Then the exercises are repeated every other day but more energetically and for ten minutes. Creening and other movements of the legs are also performed during the second and third series of exercises. The treatment is repeated once more. This time the patients stand while performing the exercises, which should be energetic and mild in alternation. The exercises should be modified for patients who have structural changes of the thorax from an operation. The duration of the second and third series of exercises depends on the variations of the pulse, the weight and clinical symptoms. The frequency of the pulse should not change, or it should diminish immediately after the exercises. The authors administered the treatment to 235 patients with apparent clinical cure. The treatment of 25 nationts was discontinued early in its course with reappearance of clinical symptoms. In these cases the exercises were a test for apparent clinical cure and for continuation of treatment for their tuberculous lesions; 40 patients are still under treatment. The clinical cure obtained by the treatment in 170 cases continues up to now. The body weight increased in 157 cases in the group of patients with clinical cure and remained stationary in 13 cases.

#### Brief Items

A clinic and hospital with two well equipped departments for work on prevention and therapy of syphilis and leprosy was recently opened to the public in Paraguay. This center will be a branch of the National Department of Hygiene. Dr. Ricardo Ugarriza is the director.

Dr. José B. Gómez of Buenos Aires left Argentina recently for Chicago. He will have a scholarship for one year given to him by the Argentine National Cultural Committee. He will study the pathology of primary tuberculous infection and BCG vaccination under Drs. Henry Sweany and Rosenthal of Chicago.

. Prof. José Arce presented his resignation from the chair of clinical surgery in the Faculty of Medical Sciences of Buenos Aires. Dr. Oscar Ivanissevich was appointed to succeed him.

Dr. Franz Keysser of Buenos Aires, previously of Germany, died Jan. 29, 1941. He was a well known worker on the field of electrosurgery, on which he wrote several important articles.

# Marriages

Addison Gorgas Brenizer Jr., Charlotte, N. C., to Miss Meredith Ewing Marshall of Providence, R. I., January 1.

IRVING DAVID LONDON, West New York, N. J., to Miss Sarah Miller of Lineville, Ala., in Brooklyn, January 1.

JOHN WATKINS TRENIS, Washington, D. C., to Miss Nelle Frances Elliott at Birmingham, Ala., in January.

George M. Cooper to Miss Alison Suzanne Hughson, both of Buffalo, at Cochran Field, Ga., February 28.

Samuel Watson Page Jr., Greenwood, S. C., to Miss Edric Ary Martin at Hillsboro, N. C., January 17.

WADLEY RAOUL GLENN to Miss Mary Frances Lewis, both of Atlanta, Ga., in Pensacola, Fla., recently.

GEORGE RITCHIE WALL, Siler City, N. C., to Miss Claudia Harris at Chevy Chase, Md., January 23.

JAMES NISSENBAUM, Appleton, Wis., to Miss Jean Hoffman of Ironwood, Mich., January 4.

 $\mbox{\sc Gates}$  J. Waxeleaum to Miss Sarah Frances Thames, both of Atlanta, Ga., recently.

MAX NORMAN to Miss Agnes Zuverink, both of Chicago, in Joliet, Ill., recently.

RALPH V. PLATOU to Miss Joanne Pierson, both of Minneapolis, January 23.

## Deaths

Joseph Bolivar De Lee @ emeritus among obstetricians in the United States, died at his home in Chicago, April 2, of coronary thrombosis, aged 72. Dr. De Lee was born in Cold Springs, N. Y., Oct. 28, 1869. After preliminary education at the College of the City of New York, he received the degree of doctor of medicine from the Chicago Medical College, now Northwestern University Medical School in 1901. Following Northwestern University Medical School, in 1891. Following an internship in the Cook County Hospital during, 1891 and 1892 he became demonstrator in anatomy at his alma mater for one year, then lecturer in physiology in the dental school. He then studied in the universities of Vienna, Berlin and Paris, returning to Chicago in 1894 and becoming demonstrator in obstetrics and then a lecturer on obstetrics, assuming the chair

of obstetrics in 1896 and the title of professor of obstetrics

in 1897. Almost immediately Dr. De Lee undertook the organization and building of a lying-in dispensary, which he founded in 1895. He began his obstetric work in a small maternity center in a building in the slums in an area in which all maternity care had been largely done by midwives. The hospital for maternity care was first opened in 1899. It began promptly to grow and to develop. In 1917 the first Chicago Lying-In Hospital and Dispensary was opened by Dr. De Lee in Chicago and in 1931 it became affiliated with the University of Chicago, and a new institution was built on the campus of the university. This institution was formally merged with the University in 1938. When the Chicago Lying-In Hospital became associated with the University of Chicago he became professor of obstetrics and gynecology and chairman of the department of obstetrics and gynecology in the University of Chicago in 1929, holding that position for three years and serving thereafter as consul-tant to the hospital. In 1938 the board of trustees of the University of Chicago named the main building of the Chicago Lying-In Hospital group

the Joseph B. De Lee Hospital. It is reported that more than 28,000 children have been born in the present institution and that it operated without a single maternal death in a period

extending over eighteen months.

From the very beginning of his career Dr. De Lee devoted himself largely to the education and advancement of his specialty in the practice of medicine. In 1932 he founded the Chicago In the practice of medicine. In 1932 he founded the Chicago Maternity Center and until the time of his death served as consulting obstetrician. He was the author of a notable work, "The Principles and Practice of Obstetrics," first published in 1913 and now in its seventh edition. He was the author of "Obstetrics for Nurses," which is now in its twelfth edition and which was first published in 1904. He also published "Notes on Obstetrics" in 1904 and in the same year assumed editorship of the Very Rook of Obstetrics. These hooks and monoship of the Year Book of Obstetrics. These books and monographs on obstetrics have been translated into most of the languages in the world and are used in medical schools in many

Dr. De Lee was intimately associated with innumerable organizations in his specialty, including honorary fellowship in the Edinburgh Obstetrical Society. He was a fellow and vice the Edinburgh Obstetrical Society. He was a tellow and vice president (1929) of the American Gynecological Society, a fellow of the American College of Surgeons. He was secretary of the Illinois State Medical Society in 1899, president of the Chicago Gynecological Society in 1908 and a councilor of the Chicago Medical Society in 1902. During 1933-1934 he was chairman of the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association. In 1906 he was awarded the master of arts degree from Northwestern University.

On his 65th birthday Dr. De Lee was awarded the Jesse L. Rosenberger Medal, which was first won by C. L. Banting,

co-discoverer of insulin.

Dr. De Lee recognized early the importance of the motion picture as a means of education. The new lying-in hospital was especially equipped for the making of motion pictures, particularly for educational purposes. Dr. De Lee was also the inventor of special devices used in obstetric and gynecologic practice. Practically all the proceeds derived from his practice and his publications Dr. De Lee devoted to the upbuilding of institutions with which he was associated and to the advancement of the teaching of obstetrics. In his career Dr. De Lee devoted himself not only to the institution which now hears his name but for many years was attending obstetrician to the Cook

County, Wesley, Mercy and Provident hospitals. Throughout his life he campaigned for improvement in obstetrics as a science and for technics which would lower the death rates of mothers and babies. He lived to see many of the procedures for which he fought recognized as essential routine in

his specialty.

Arthur Vincent Goss,
North Pownal, Vt.; University of Vermont College of Medicine, Burlington, 1886; member of the American Psychiatric Association; first assistant physician at the Brattleboro Retreat, Brattle-boro, Vt., from Oct. 15, 1923 to June 30, 1932; formerly on the staff of the Butler Hospital, Providence, R. I.; at one time assistant physician, assistant superintendent and superintendent of the Taunton (Mass.) State Hospital; aged 82; died, January 24, in Tun-bridge of cerebral hemorrhage and hypertension.

John Abraham Pratt Minneapolis; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; formerly assistant professor of otology.

rhinology and laryngology at the University of Minnesota Medical School; for many years on the staff of the Minneapolis General and Asbury hospitals; aged 73; died, February 21, of

pneumonia and carcinoma of the prostate.

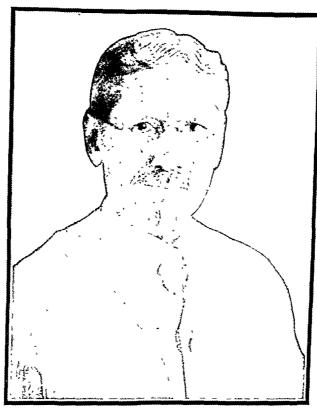
Edward Sutphen Pope ⊕ New York; New York Homeopathic Medical College and Hospital, New York, 1903; Jefferson Medical College of Philadelphia, 1905; formerly adjunct professor of otology at the New York Polyclinic Medical School and Hospital; executive surgeon and secretary of the Midtown Hospital; on the staff of St. Vincent's Hospital, Montclair, N. J., and the New York Eye and Ear Infirmary; aged 61; died, January 23, of coronary disease.

Robert Hugh Arthur, Toronto, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1885; Licentiate of the Kings Queens College of Physicians, Dublin, Ireland, 1885; served during World War I; from 1914 to 1936 served on the Council of the Ontario College of Physicians and Surpneumonia and carcinoma of the prostate.

on the Council of the Ontario College of Physicians and Surgeons and was president of that body in 1925 and 1926; past president of the Medical Council of Canada; at one time mayor

president of the Medical Council of Canada; at one time mayor of Sudbury; aged 80; died, Dec. 19, 1941.

Richard Joshua Brown & Newark, N. J.; University and Bellevue Hospital Medical College, New York, 1910; member of the South Orange village board of trustees; consultant on the staff of the East Orange (N. J.) General Hospital, Babics' Hospital, Newark and the Essex County Hospital for Contagious Diseases, Belleville; secretary and obstetrician on the staff of the Presbyterian Hospital, where he died, February 4, of lobar pneumonia, aged 58. of lobar pneumonia, aged 58.



JOSEPH BOLIVAR DE LEE, M.D., 1869-1942

George Joshua Gillam, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1910; F.R.C.S. of England, 1923; served during World War I; a member of the staff in the department of anatomy as a demonstrator from 1923 to 1925 and a junior demonstrator in surgery from 1930 until 1933 at the University of Toronto Faculty of Medicine; aged 54; on the staff of the Toronto Western Hospital, where he died, Dec. 20, 1941.

Julius Wolff ® New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1893; an Affiliate Fellow of the American Medical Association; ophthalmologist, Randall's Island Hospital, from 1899 to 1905; assistant ophthalmic surgeon to Bellevue Hospital from 1927 to 1932; served in various capacities on the staff of the Mount Sinai Hospital; aged 72; died, January 26, of acute coronary thrombosis.

Alexander Barclay Sr. © Coeur d'Alene, Idaho; University of Minnesota College of Medicine and Surgery, Minneapolis, 1907; past president of the Idaho State Medical Association; for many years member of the state medical examining board; fellow of the American College of Surgeons; medical director of the Coeur d'Alene Hospital; aged 59; died, February 27, at Arlington, Calif., of cirrhosis of the liver.

Charles Herman De Lancey & Passed Assistant Surgeon, Lieutenant, U. S. Navy, retired, Brooklyn; College of Physicians and Surgeons, medical department of Columbia College, New York, 1891; entered the navy June 23, 1900 and retired March 3, 1909 for incapacity resulting from an incident of service; aged 75; died, February 10, in the United States Naval Hospital of sarcoma of the left rib and lung.

Thomas Mitchell Burns ⊕ Denver; Gross Medical College, Denver, 1893; professor of obstetrics emeritus at the University of Colorado School of Medicine; fellow of the American College of Surgeons; attending obstetrician, Mercy Hospital; consulting obstetrician, Denver General Hospital, Florence Crittenton Home, and the National Jewish Hospital; aged 74; died, February 17, of posterior mediastinitis.

Samuel R. Holroyd, Athens, W. Va.; College of Physicians and Surgeons, Baltimore, 1890; member and past president of the West Virginia State Medical Association; county health officer; formerly member of the state legislature; at one time superintendent of the Spencer (W. Va.) State Hospital; aged 73; died in January in the Mercer Memorial Hospital, Princeton, of diabetes mellitus.

Thomas Van Hunter & Los Angeles; McGill University Faculty of Medicine, Montreal, Que., Canada, 1906; served with the Canadian Army during World War I; formerly on the staff of the Grace Hospital, Detroit, and the Highland Park (Mich.) Hospital; on the staff of the Presbyterian Hospital-Olmstead Memorial; aged 65; died, January 22, in an automobile accident.

Rollin Oliver Baker & Montour Falls, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1906; served during World War I; at various times health officer, school physician and county coroner; on the staff of the Shepard Relief Hospital; aged 59; died, February 11, in the Strong Memorial Hospital, Rochester, of carcinomatosis.

Charles Green Rockwood Jennings, Elmira, N. Y.; University of Vermont College of Medicine, Burlington, 1884; College of Physicians and Surgeons, medical department of Columbia College, New York, 1885; formerly member of the board of education; aged 82; died, February 15, in the Arnot-Ogden Memorial Hospital of a fractured hip received in a fall,

William Austin Buchanan, Hammond, Ind.; University of Nashville (Tenn.) Medical Department, 1899; member of the Indiana State Medical Association; for many years secretary of the board of health of Hammond and formerly health officer; aged 71; on the staff of St. Margaret Hospital, where he died, February 11, of pyemia and diabetes mellitus.

Louis Francis O'Neill, Auburn, N. Y.; Albany Medical College, 1900; member of the Medical Society of the State of New York; past president of the Cayuga County Medical Society; formerly county coroner; on the staffs of the Mercy Hospital and the Auburn City Hospital; aged 66; died, January 5, of coronary occlusion and arteriosclerosis.

Irving Goumott Cameron & Brooklyn; Long Island College Hospital, Brooklyn, 1904; fellow of the American College of Surgeons; surgeon. Brooklyn Eye and Ear Hospital; consulting ear, nose and throat surgeon, Kings County Hospital; consultant in otorhinolaryngology, Wyckoff Heights Hospital; aged 66; died, February 1, of heart disease.

Charles Austin Durkee, Abercrombie, N. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; member of the North Dakota State Medical Association; county health officer; aged 62; died, February 19, in a hospital at Fargo of acute coronary occlusion and diabetes mellitus.

Alphonse R. Bizot, Louisville, Ky.; University of Louisville Medical Department, 1901; member of the Kentucky State Medical Association; member of the county selective service examining board; on the staffs of the SS. Mary and Elizabeth Hospital and St. Joseph Infirmary; aged 67; died, February 13, of carcinoma of the pancreas.

James Bebout Bert, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1912; associate professor of obstetrics at his alma mater; served during World War I; aged 52; on the staff of St. Luke's and Children's Hospital and the Hahnemann Hospital, where he died, February 4, of pneumonia.

Charles Lorton Best ⊕ Freeport, Ill.; Rush Medical College, Chicago, 1904; fellow of the American College of Surgeons; past president of the Stephenson County Medical Society; on the staffs of the Deaconess Hospital and St. Francis Hospital; aged 62; died, February 6, of coronary occlusion.

Eric Olonzo Giere & Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1892; fellow of the American College of Surgeons; member of the state medical board from 1903 to 1906; surgeon, Fairview Hospital, where he died, February 12, of coronary thrombosis, aged 73.

Joseph Herbert Clyman Dhiladelphia; Medico-Chirurgical College of Philadelphia, 1910; chairman of the local draft board; on the staffs of St. Luke's and Children's Hospital, St. Joseph Hospital and and the Mount Sinai Hospital; aged 55; died, February 18, of coronary thrombosis.

Albertus Nyland, Grand Rapids, Mich.; Physio-Medical College of Indiana, Indianapolis, 1886; member of the Michigan State Medical Society; past president of the state board of registration in medicine; aged 86; died, January 29, in St. Mary's Hospital of cerebral hemorrhage.

Amos McKinnie Jones & Anson, Texas; University of Texas School of Medicine, Galveston, 1906; served during World War I; aged 62; on the staff of St. Ann Hospital and of the Hendricks Memorial Hospital, Abilene, where he died, January 7, of coronary thrombosis.

John Joseph Breen, Lowell, Mass.; St. Louis University School of Medicine, 1928; member of the Massachusetts Medical Society; examining physician for the local draft board; aged 39; on the staff of St. John's Hospital, where he died, February 3, of a ruptured peptic ulcer.

Howard W. Arndt, Lore City, Ohio; Starling Medical College, Columbus, 1897; member of the Ohio State Medical Association; aged 69; past president of the Guernsey County Medical Society; died, February 6, in St. Francis Hospital, Cambridge, of acute endocarditis.

Carl Freeman Pierce & Greensburg, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1907; past president of the Westmoreland County Medical Society; president of the staff of the Westmoreland Hospital; aged 60; died, January 22, of bronchogenic carcinoma.

Zannie Brantley & Grandin, Fla.; Atlanta (Ga.) School of Medicine, 1913; past president of the Putnam County Medical Society; for many years member of the board of county commissioners; aged 63; died, February 6, in a hospital at Palatka of pneumonia.

Stanley Frederick Goldman, New York; University and Bellevue Hospital Medical College, New York, 1936; member of the Medical Society of the State of New York; on the staff of the Bronx Hospital; aged 33; died, February 24, of cerebral hemorrhage.

James Randall Cooper, Richmond, Ind.; University of Nebraska College of Medicine, Omaha, 1932; member of the Indiana State Medical Association; superintendent of the Smith-Esteb Memorial Hospital; aged 38; died, February 7, of pneumonia.

Thomas Jefferson Stough, Montgomery, Ala.; University of Tennessee Medical Department, Nashville, 1893; member of the Medical Association of the State of Alabama; formerly member of the state legislature; aged 74; died, January 30, of nephritis.

Jefferson Brockner Van Tine, New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1893; formerly on the staff of the Sloane Maternity Hospital; aged 70; died, January 22, of carcinoma of the liver.

James Byron Van Horn, Tucson, Ariz.; Eclectic Medical Institute, Cincinnati, 1905; member of the Arizona State Medical Association; formerly a first lieutenant in the medical reserve, U. S. Army; aged 59; died, January 28, of cerebral thrombosis.

Clinton Amos Hardesty & Paragould, Ark.; St. Louis College of Physicians and Surgeons, 1910; past president of the Greene County Medical Society; on the staff of the Dickson Memorial Hospital; aged 65; died, January 10, of coronary occlusion.

Ralph Livingston Daniels, New Bern, N. C.; Medical College of Virginia, Richmond, 1912; member of the American Academy of Ophthalmology and Otolaryngology; served during World War I; aged 54; died, February 21, of cerebral hemorrhage.

Harry Cattell Fisler & Easton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; on the staff of the Easton Hospital; aged 68; died, February 20, in the Jefferson Hospital, Philadelphia, of acute coronary thrombosis.

Justus Corbly Garard © Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; aged 68; on the staff of St. Anne's Hospital, where he died, February 4, of carcinoma of the sigmoid.

Ellsworth E. Conover & High Bridge, N. J.; University of Vermont College of Medicine, Burlington, 1885; on the staff of the Hackensack (N. J.) Hospital; aged 80; died, February 14, of shock and exhaustion following a prostatectomy.

Nathaniel Guido Clark & Montgomery, Ala.; Birmingham Medical College, 1898; chief medical advisory officer of the department of correction and institutions of the state of Alabama; aged 69; died, February 11, of coronary occlusion.

George Richtmyer DeSilva, Catskill, N. Y.; University of the City of New York Medical Department, 1881; member of the Medical Society of the State of New York; aged 86; died, February 18, of acute dilatation of the heart.

Lemuel Baxley Russell, Hoopeston, Ill.; Rush Medical College, Chicago, 1894; past president of the Vermilion County Medical Society; member of the draft board during World War I; aged 73; died, January 22, of myocarditis.

Robert W. Cupp, Marmaduke, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1919; member of the Arkansas Medical Society; past president of the school board; aged 58; died, January 17, of carcinoma of the liver.

Gustavus G. Bock, Smithton, Ill.; St. Louis Medical College, 1882; member of the Illinois State Medical Society; for many years mayor of Smithton; aged 83; died, February 6, in Maryland Heights, Mo., of arteriosclerosis.

Oscar T. Bloomer, St. Joseph, Mo.; Central Medical College of St. Joseph, Mo., 1895; member of the Missouri State Medical Association; aged 80; died, February 19, of arteriosclerosis and cerebral hemorrhage.

Irwin Isadore Abrams, Toledo, Ohio; Detroit College of Medicine and Surgery, 1934; resident physician at the Veterans Administration Facility, Summount, N. Y.; aged 33; died, February 5, in Lake Placid, N. Y.

Frederick George Ulman, Enumclaw, Wash.; University of Oregon Medical School, Portland, 1905; member of the Washington State Medical Association; aged 71; died, January 29, of coronary occlusion.

Byron E. Burnell & Flint, Mich.; Detroit College of Medicine, 1901; past president of the Genesee County Medical Society; aged 75; died, February 16, in the Hurley Hospital of cardiorenal vascular disease.

Charles Ross Bonzo, Ambridge, Pa.; Ohio Medical University, Columbus, 1903; member of the board of health of Ambridge; aged 61; died, February 8, of coronary thrombosis and diabetes mellitus.

Arthur O. Flowers, Clarksburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1891; member of the West Virginia State Medical Association; aged 78; died, February 5, of acute peritonitis.

ot acute pertonuts.

George Thomas Swail, Houston, Texas; M.B., University of Glasgow Medical Faculty. Scotland, in 1878 and M.D. in 1885; aged 93; died, January 11, in St. Joseph's Hospital of coronary occlusion.

Ira B. Oldham & Muskogee, Okla.; Hospital College of Medicine, Louisville, Ky., 1892; aged 70; on the staff of the Oklahoma Baptist Hospital, where he died, January 14, of coronary occlusion.

John B. Argadine, Toledo, Ohio; Cincinnati College of Medicine and Surgery, 1893; aged 74; died, February 22, in St. Vincent's Hospital of uremia and a fracture of a femur received in a fall.

Nellie Veronica Donovan, New York; Cleveland Homeopathic Medical College, 1910; aged 54; died, February 8, in the Kings Park (N. Y.) State Hospital of arteriosclerotic heart disease.

Alice Idella Ross, Whittier, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1894; aged 71; died, January 15, of carcinoma of the mammary gland.

Francis Adelbert Bragg, Foxboro, Mass.; Harvard Medical School, Boston, 1894; member of the Massachusetts Medical Society; aged 76; died, February 6, of cerebral hemorrhage.

Ernest H. Harris, Coy, Ark.; College of Physicians and Surgeons, Little Rock, 1911; member of the Arkansas Medical Society; aged 61; died, January 15, of coronary occlusion.

Charles M. Iddings, Brookeville, Md.; University of Maryland School of Medicine, Baltimore, 1888; aged 81; died in February of cerebral hemorrhage and arteriosclerosis.

Mary E. Troyer Williamson, Ramona, Okla.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1883; aged 88; died, January 15, of injuries received in a fall.

John H. Ellington, San Augustine, Texas (licensed in Texas under the Act of 1907); member of the State Medical Association of Texas; aged 63; died, February 2.

Harvey Llewellyn Clarke Sr., Fairbury, Neb.; University of Michigan Homeopathic Medical School, Ann Arbor, 1882; aged 83; died, February 3, of coronary thrombosis.

Rembert Ernest Broadway, Summerton, S. C.; Medical College of the State of South Carolina, Charleston, 1911; aged 57; died, February 18, of coronary thrombosis.

General Grant Bragg, Huntsville, Mo.; Missouri Medical College, St. Louis, 1889; served during World War I; aged 75; died, February 9, of uremia and chronic nephritis.

William F. Williamson, Richmond, Va.; University College of Medicine, Richmond, 1905; served during World War I; aged 62; died, January 13, of heart disease.

Walter Brown, Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1875; aged 91; died, February 13, in the Fort Hamilton Hospital of cerebral hemorrhage.

John Floyd A. Ketcham, Great Barrington, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1935; aged 39; died, January 30, of heart disease.

John S. Patterson, Staunton, Ill.; St. Louis College of Physicians and Surgeons, 1904; aged 75; died, January 13, in a hospital at Alton of arteriosclerosis.

William P. Collins, Racine, Wis.; Rush Medical College, Chicago, 1888; aged 82; died, February 7, in Lakeland, Fla., of bronchopneumonia and heart disease.

Martin David Goldenberg, Milwaukee; Marquette University School of Medicine, Milwaukee, 1929; aged 44; died, February 19, of coronary occlusion.

John T. Blanks, Dermott, Ark.; Medical Department of Tulane University of Louisiana, New Orleans, 1888; aged 80; died, February 18, of endocarditis.

Conrad Fisher Sayre, Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1910; county coroner; aged 52; died, January 11.

Owen John Cameron, Antigonish, N. S., Canada; Harvard Medical School, Boston, 1918; aged 46; died, January 9.

# DIED IN MILITARY SERVICE

Gustavus De Lana Funk & El Reno, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1933; was called to active duty as a first lieutenant in the medical reserve, U. S. Army, Oct. 11, 1940, and was promoted to captain in December 1941; was assigned to the district recruiting office at Lubbock, Texas; aged 36; died, February 26, of heart disease.

# Correspondence

# PERIPHERAL VASCULAR DISEASE CLINICS

To the Editor:—The committee appointed by the American Heart Association to establish standards for peripheral vascular disease clinics desires to have a complete list of such clinics throughout the United States. Kindly communicate as soon as possible after seeing this notice with the chairman of this committee, giving the following data:

- 1. Name of hospital?
- 2. Name of chief or chiefs of clinic?
- 3. Under medical or surgical service?
- 4. Is there an associated hospital service?

A. Wilbur Duryee, M.D., Chairman, 140 East Fifty-Fourth Street, New York City,

# PROPYLENE GLYCOL A MENSTRUUM FOR SODIUM SULFATHIAZOLE

To the Editor:-In Queries and Notes in a recent issue of THE JOURNAL (February 14, p. 567) one reads the reply to the disturbing question concerning the safe concentration of sodium sulfathiazole when used in medicating the nasal mucosa. As was so well stated, sodium sulfathiazole is not free of undesirable reactions because of the irritating properties associated with its alkalinity. Aqueous solutions of sodium sulfathiazole vary in pn from 10 to 11 and may become yellow on standing, especially when unprotected from daylight. To obviate the strong alkalinity, irritating properties and deterioration of such solutions, we have dissolved various sulfonamides in propylene glycol (Modern Hospital 57:106 [July] 1941; J. Indiana M. A., to be published in April). The most useful of these propylene glycol preparations have been a 3 per cent solution of sulfathiazole, a 3 per cent solution of sulfapyridine and a 10 per cent solution of sulfanilamide. The  $p_{II}$  of the sulfathiazole solution varies between 6 and 7 when diluted 1:9 with water, and the solution of sulfanilamide possesses a pn of 5.3 when diluted 1:7 with water, thus affording solutions whose ph more nearly conforms to normal nasal secretions. These secretions were found (Fabricant, N. D.: Significance of the pu of Nasal Secretions, Tr. Am. Acad. Ophth., May-June, 1941, p. 197) to be acid in reaction, pu values varying from 5.5 to 6.5, and to become alkaline when infected. The 3 per cent solution of sulfathiazole can be diluted with 0.9 per cent saline solution or water prior to use, but the undiluted 3 per cent solution atomizes very well at 22 C. or more, is nonirritating to the mucosa of the nasal passages, oral pharynx, larynx, trachea or bronchi and affords definite relief in many cases of acute and chronic infections of the upper respiratory tract. Any type of organism susceptible to sulfonamide therapy should, if harbored in the upper respiratory tract, likewise be favorably affected by sulfonamides in propylene glycol. Detailed reports of various types of cases studied with Drs. G. B. Myers, R. H. Huff, J. M. Robb and R. W. Blackford at the Detroit Receiving Hospital will be published later, but results to date indicate that this preparation of sulfathiazole warrants extensive trial in infections of the upper respiratory tract. The patient is instructed to inhale while the solution is sprayed several times into the nose or throat at thirty or sixty minute intervals for four or five hours or more, and this procedure may be supported in cases of severe infections by proper oral doses of sulfathiazole.

It stored in amber colored bottles at 22 C. or more these self-sterilizing, nonirritating solutions of concentrated sulfathiazole remain stable, colorless and potent. Some of our solutions are now more than 6 months old and no apparent alteration in their consistency, appearance or potency is evident. Our

toxicity experiments on rabbits receiving these solutions intraperitoneally and intravenously and the investigations of the Stanford group (Hanzlik, D. J.; Neuman, H. W.; Van Winkle, W.; Lehman, A. J., and Kennedy, N. K.: Toxicity, Fate and Excretion of Propylene Glycol and Some Other Glycols, J. Pharmacol. & Exper. Therap. 67:101 [Sept.] 1939) reveal that, in contradistinction to diethylene glycol (Geiling, E. K.; Coon, J. M., and Schoeffel, E. W.: Preliminary Report of Toxicity Studies [of Diethylene Glycol] on Rats. Rabbits and Dogs, THE JOURNAL, Nov. 6, 1937, p. 1532; Haag, H. B., and Ambrose, A. M.: Studies on the Physiologic Effect of Diethylene Glycol, J. Pharmacol. & Exper. Therap. 59:93 [Jan.] 1937), propylene glycol can be well tolerated in large amounts without unfavorable results. The relative safety of propylene glycol is also assured by its use as a vehicle for certain proprietary vitamin D preparations and in sobisminol mass, and experience to date warrants its application in any concentration to any open lesion of the skin or mucosa, with the probable exception of the conjunctiva. This glycol, as well as ethylene glycol and trimethylene glycol, is an effective aerial germicide (Robertson, O. H.; Bigg, Edward; Miller, B. F., and Baker, Zelma: Sterilization of Air by Certain Glycols Employed as Aerosols, Science 93:213 [Feb. 28] 1941). Propylene glycol may be fortified, however, by addition of 10 per cent sulfanilamide, 3 per cent sufathiazole or sulfapyridine. Unfortunately, sulfadiazine is only approximately 0.3 per cent soluble in propylene glycol. We also find that equal volumes of the three propylene glycol solutions of sulfanilamide, sulfathiazole and sulfapyridine may be mixed, since they are compatible and thus afford greater probability of efficiency in the presence of mixed infections.

FREDRICK F. YONKMAN, M.D. BRADFORD N. CRAVER, PH.D. ARNOLD J. LEHMAN, M.D. HAROLD F. CHASE, M.D.

Detroit.

#### ESTROGENIC TREATMENT OF GONOR-RHEAL VULVOVAGINITIS

To the Editor:—A few years ago I corresponded with reference to the relative worth of the estrogenic treatment of gonorrheal vulvovaginitis. In view of the fact that the originator of the estrogenic treatment, Dr. R. M. Lewis, has himself repudiated this treatment and in view of current literature corroborating his present attitude, I feel that it is worth while to bring this matter to your attention again. I quote from an article by him in Venercal Disease Information (22:352. [Oct.] 1941): "Unfortunately, treatment with estrogens is still employed. As I shall mention later, it has no curative value and is not to be compared with the brilliant results now obtainable with sulfathiazole. . . . It is evident that the estrogenic treatment was but a palliative procedure which carried patients along until spontaneous recovery occurred."

However, there are many interesting and valuable facts that have been brought out by this treatment. One is the fact that newborn females do not easily acquire gonorrheal vulvovaginitis, the probable reason being that they carry, for a short time, estrogens from their mothers (cause of hyperplasia of breasts and genitalia of newborn females). These estrogens apparently do not allow the gonococcus to gain a foothold in the newborn female genitalia. Nevertheless, in 1934 I reported 3 cases which occurred in premature females and recommended "that all newborn females have prophylaxis of the vulva routinely, along with the eyes." Since then this has become the routine practice in one of the largest hospitals of this city. Lewis now recommends "flushing the vagina and vulva of the newborn of infected mothers with silver solutions."

# Medical Examinations and Licensure

# COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE CHICAGO Feb 15 16, 1943 Sec., Council on Medical Education and Hospitals, Dr. H. G. Weiskotten, 535 North Dearborn Street, Chicago

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES
Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in The Journal, April 4,

BOARDS OF MEDICAL EXAMINERS

ALABAMA Montgomery June 16 18 Acting Sec, Dr B I Austin, 519 Dexter Ave, Montgomery

Arransas * Medical Little Rock, June 45 Sec, Dr D L Owens, ARAMSAS * Medical Little Rock, June 45 Sec., Dr. D. L. Owens, arrison Eclectic Little Rock, June 45 Sec., Dr. Clarence H. Young, 415 Main St., Little Rock
CALIFORNIA Written San Francisco, June 29 July 2 Oral exam

CALIFORNIA Written San Francisco, June 29 July 2 Oral eram ination (required when reciprocity application is based on a state certinicate or license issued ten or more years before filing application in California), Los Angeles, May 20 Sec., Dr. Charles B. Pinkham, 1020 N. St. Sacramento. California), Los Angeres, Man,
N St., Sacramento
Detaware Dover, July 1416 Sec. Medical Council of Delaware,
Dr Joseph S McDaniel 229 S State St., Dover
Thorno * Jacksonville, June 2225 Sec., Dr William M Rowlett,

Dr Joseph S McDaniel 2223 Sec, Dr Wunam 22 Dox 786, Tampa George Atlanta June Sec, State Examining Boards, Mr R C Coleman, 111 State Capitol, Atlanta Hawaii Honolulu, July 13 16 Sec, Dr James A Morgan, 55 Young Bidg, Honolulu Trive Chargo Tune 23 25 Superinten of Page trait of Mr ment of Registration June 16 18 Sec Jowers, 301 State Hc Jowesian of Licensure and Reg

June 16 18 Sec

Jones 18, 301 State He

Jones 18, 301 State He

Jones 18, 301 State He

Jones 11 June 18, 302 He He

Istration, Mr H W Grefe Capitol Bldg, Des Moines

KANSAS Kansas City, June 2 3 Sec, Board of Medical Registration and Examination, Dr J F Hassig, 905 N Seventh St, Kansas City

KENTUCKY Louisville, May 27 29 Sec, State Board of Health, Dr

A T McCormack, 620 S Third St, Louisville

MARYLAND Medical Baltimore, June 912 Sec, Dr John T

O Vlara, 1215 Cathedral St, Baltimore Homeopathic Baltimore, June

16 17 Sec, Dr John A Evans, 612 W 40th St, Baltimore

MICHIGAN * Ann Arbot and Detroit, June 10 12 Sec Board of Reg

J Earl McIntyre, 202-4 Hollister Bldg, Lansing

s April 21 23 Sec, Dr Julian F Du Bois,
lidg, St Paul

June Assistant Sec, State Board of Health,

900

Missouri St Louis June 46 Sec, Board of Health, Dr James Stewart, State Capitol Bldg Jefferson City
Nevada Writich May 4 Reciprocity with oral examination May 4
Applications must be on file not later than April 20 Sec, Dr Frederick
M Anderson, 215 N Carson St, Carson City
New Jersey Trenton, June 16 17 Sec, Dr Earl S Hallinger, 28 W
State St, Trenton
New Mexico * Santa Fe, April 13 14 Sec, Dr Le Grand Ward
135 Sena Plaza, Santa Fe
New York, Albany Buffalo New York and Syracuse, June 22 25
Chief Burcau of Professional Examinations, Mr Herbert J Hamilton,
315 Education Bldg Albany
North Carolina Raleigh June 15 Sec, Dr W D James Hamlet
North Darota Grand Forks, July 7 10 Sec, Dr G M Williamson,
47 S Third St, Grand Torks
Onto Written Columbus, June Sec, Dr H M Platter, 21 W
Broad St, Columbus
Oklahoma * Oklahoma City June 3 + Sec, Dr James D Osborn
Jr Frederick

Jr 1 rec Oregon Failin

ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORLAHOMA
ORL

of Professional Licensing, Mrs. Marguerne G. Siemer, Bldg, Harrisburg.
South Carolina. Columbia. June 22 24 Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.
South Dakota. * Pierre, July 21 22 Dir., Medical Licensure, Dr. J. D. Cook, State Board of Health Pierre.
UTAH. Salt Lake City. June 29 30. Assistant Dir., Department of Registration, Mr. G. V. Billings, 324 State Capitol Bldg. Salt Lake City. Vermont. Burlington, June 16 18 Sec., Board of Medical Registration, Dr. F. J. Lawliss. Richford.
Virgina R. Lawliss. Richford.
Virgina R. Roanoke. Sec., Dr. J. W. Preston, 301/2. Frinklin Rd., Roanoke. Sec., July 30 July 3. Sec., Dr. H. W. Shutter, William Rd., Roanoke.

ikee June 30 July 3 Sec., Dr. H. W. Shutter, Milwaukee June 1.2 Sec., Dr. M. C. Keith, Capitol Bldg.,

#### Chevenne

* Basic Science Certificate required

*BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONSECULUT June 13 Address State Board of Healing Arts, 1945

Yale Station, New Haten
DISTRICT OF COLUMBIA Washington, April 20 21 Sec Commission on
Licensure, Dr George C Ruhland, 6150 E Municipal Didg Washington
Licensure, Dr George C Ruhland, 6150 E Municipal Didg Washington
FLORIDA Gunesville June 8 Sec, Professor J T Conn, John B
Stetson University, De Land
LOVA Des Moines, April 14 Dir Division of Licensure and Regis
tration, Mr H W Grefe, Capitol Bldg, Des Moines
Albraska Omaha May 5 6 Dir Bureau of Examining Boards,
Mrs Jernnette Crawford, 1009 State Capitol Bldg, Lincoln
Mrs Jernnette Crawford, 1009 State Capitol Bldg, Lincoln
New Mexico Springer, June 12 Sec, Viss Pia Joerger, State
Capitol, Santa Fe
OKLAHOMA Oklahoma City, May 15 Sec, Dr Oscar C Nei man,
Shattuck

Shatuck

Oregon Corrolles July II
than June 24 Sec, Mr Charles E
RHODE ISLAND Providence, M
Mr Thomas B Cases, 366 State
South Dakota Vermillion, Jun and and on met he on fle not later n, Eugene vaminers.

Yankton

# Bureau of Legal Medicine and Legislation

# MEDICOLEGAL ABSTRACTS

Malpractice: Liability for Results of Treatment of Infantile Paralysis.-In November 1934 the plaintiff wite lost the use of the upper part of her body, her arms and her hands as the result of an attack of infantile paralysis and was immediately placed under the supervision and direction of an orthopedic surgeon. While under his care she improved to a point at which she could rotate her arms and could perform simple tasks with her hands, such as cutting out pictures, untying knots in shoelaces, cleaning out grapefruit and peeling potatoes There was very little improvement in the patient's ability to use the muscles of her upper arms and shoulders Some time in July 1936 the patient became dissatisfied with her treatment and progress and consulted the defendant physician, an orthopedic surgeon with many years' experience in the treatment of patients afflicted with infantile paralysis. He agreed to treat her on the condition that she follow his instructions On July 7, 1936 the defendant placed the patient in a cast which covered her body from her neck to her hips and extended down her arms to the first joint of the fingers and thumbs. The cast remained in place until November 11, when it was removed on the patient's complaint that it was becoming painful. When the cast was removed, the patient's wrists and fingers were found to be practically rigid, and many massage treatments and even manipulations under an anesthetic were necessary before any flexibility returned. There seemed to be a slight improvement in the shoulder muscles, however. In a subsequent suit by the patient and her husband against the defendant for damages, the trial court entered judgment for the plaintiffs, and the defendant appealed to the Supreme Court of Washington

The only expert medical testimony in the case was supplied by the defendant and Dr LeCocq, a witness called in his behalf. Dr LeCocq stated that it was the approved and accepted practice of orthopedic physicians in that community to place an infantile paralysis patient in a cast in order to rest the afflicted muscles and that very often the physician would not visit the patient from the time the cast was put on until it was removed, the patient being advised to report if anything seemed wrong Both Dr LeCocq and the defendant stated that some stiffness in the immobilized joints was to be expected, that such stiffness would occur within three to eight weeks after the cast was put on, and that it would not be aggravated or increased by permitting the cast to remain in place longer than eight weeks, because once the stiffness had set in it became fixed and would not change. The defendant further testified that when the cast was applied he told the patient to notify him any time anything seemed wrong. After about eight weeks he called the patients husband and told him to buy a brace to be applied as soon as the cast was removed. Because of some financial trouble with the brace maker, however, the husband did not obtain the brace until November 10 or 11 The east was then removed and the brace applied. There was also some evidence on behalf of the defendant that the patient did not follow all of the recommended The plaintiffs did not offer any expert testimony treatment indicating that the patient's condition was in any way the result of the defendant's treatment

The plaintiffs contended that the defendant's negligence consisted in leaving the patient in the cast for more than the customary six to eight weeks without making periodic investigations to ascertain her condition. They also contended that no expert testimony was needed to prove the defendant's unskilled and negligent treatment. The Supreme Court admitted that in malpractice cases it is not always necessary to prove negligence by direct and positive evidence but said that the only exceptions were cases in which the negligent act was readily apparent as the leaving of a sponge in a person's body after an operation The most the plaintiffs' evidence showed, said the court, 1176 that, when the cast was put on, the patient could use her i rists and fingers and when it was taken off she could not, in other words, that a bad result followed the attempt of the determine to restore the use of the patient's shoulder muscles . I plus sic an

is not a guarantor, and the mere fact that a bad result follows a particular treatment does not in itself establish negligence. Furthermore, the court was of the opinion that if the patient's husband had furnished the requested brace sooner the cast would have been removed sooner.

On the basis of all the evidence, the court thought, there was no competent showing that the patient's injuries in any way resulted from the fact that the cast was left on longer than the ordinary six to eight weeks or that if the defendant had made an investigation at the end of six or eight weeks he would have found a different condition from that which existed at the time the cast was ultimately removed. The court also held that the question of the defendant's negligence in this case could properly be determined only by medical experts and that, since the plaintiffs furnished none, to allow the judgment to stand would be to say that the jury could speculate on the question of the defendant's negligence. The judgment for the plaintiffs was accordingly reversed.—Crouch v. Wyckoff, 107 P. (2d) 339 (Wash., 1940).

Assault and Battery: Sufficiency of Evidence to Show Consent to Operation.-The plaintiff sustained injuries to his right chest and neck, above and below the clavicle, and was eventually taken to a hospital and placed under the care of the defendant physician. A roentgenogram disclosed a fracture of the transverse process of the sixth cervical vertebra on the right side. Electrical treatments were administered for a considerable period but without success; the plaintiff continued to suffer excessive pain in his shoulder whenever he moved his arm. The defendant therefore decided that an operation was necessary. Neither the exact nature of the operation nor its result was disclosed in the report of this case, but some time thereafter the plaintiff sued the defendant physician for damages. The jury disagreed, the defendant's motion for judgment was denied, and the defendant appealed to the Supreme Court of Pennsylvania.

The plaintiff contended that the defendant had performed the operation without his consent and was therefore guilty of an assault and battery. The evidence showed that after electrical treatment gave no relief the defendant advised the plaintiff that an operation would be necessary. Various conversations were held between the plaintiff and the defendant concerning this operation, and at no time did the plaintiff interpose any objection to it. In fact the plaintiff testified "Dr. Berg come to my room and tell me, he say, 'Mr. Dicenzo, we going to operate you half past eight tomorrow morning.' I say, 'O. K., doctor. Where are you going to operate me?'" Apparently the plaintiff's only worry was as to the location of the incision. He was aware, however, that surgical relief was necessary and that the region of the neck would be involved. The evidence showed that the incision was, in fact, "made over the neck." The Supreme Court observed that when a patient is in full possession of his faculties and able to consult about his condition and when no emergency exists making a conference with the physician impracticable, the patient's consent is a prerequisite to a surgical operation by his physician. An operation without the consent of the patient under such circumstances constitutes a technical assault. Applying that rule to the facts of this case, however, the Supreme Court was of the opinion that the defendant was fully justified in believing that the plaintiff had assented to the performance of the operation. The order overruling the defendant's motion for judgment was therefore reversed and judgment was entered for the defendant.-Dicenso v. Berg, 16 A. (2d) 15 (Pa., 1940).

Malpractice: Pregnancy Diagnosed as Tumor; Right of Specialist to Rely on Diagnosis by Family Physician.

—The plaintiff, believing that she was pregnant, consulted her family physician, who examined her both externally and internally and diagnosed her condition as a tumor rather than a pregnancy. He then took the plaintiff to a roentgenologist for treatment. The only examination which the roentgenologist made was to feel the plaintiff's abdomen and call attention to its enlargement. Relying thus on the diagnosis of the family physician, he administered a roentgen treatment. The decision abstracted does not indicate what injury the patient suffered, but she sued the two physicians and the case in the trial court

was nonsuited as to the roentgenologist and dismissed for lack of jurisdiction as to the family physician because he resided in another county. The plaintiff appealed to the court of appeals of Georgia, division No. 1.

The plaintiff contended that the malpractice of the defendants consisted in their failure and refusal to make a roentgen examination to determine whether or not she was in fact pregnant. The court of appeals said that a patient was entitled to receive as thorough and careful an examination as the circumstances would permit. The evidence failed to show, however, said the court, that the family physician had an x-ray apparatus available at the time he made the diagnosis, that the method of examination used by him was not the customary one under the circumstances or that the child was fully enough developed to have been discovered by a roentgen examination. The plaintiff then insisted that the roentgenologist, who did have x-ray equipment available, should have made such an examination. court of appeals held, however, that a specialist to whom a family physician refers a patient for treatment has a right to rely on the diagnosis made by the family physician unless there are contrary indications. The slight examination made by the roentgenologist in this case, continued the court, was sufficient to lead him to believe that the diagnosis of the family physician had been correct. He was therefore not required to examine further. In conclusion, the court also pointed out, this was a case which concerned highly specialized expert knowledge with which laymen were unfamiliar and that, "where want of skill and care is not thus shown by expert evidence applied to the facts, there is no evidence of it proper to be submitted to the jury. Laymen, even jurors and courts, are not permitted to say what is the proper method of diagnosing a case for discovering the nature of an ailment." A court and jury must have a standard measure, which they can use in measuring the acts of a physician to determine whether or not he exercised a reasonable degree of care and skill. That standard has to be furnished by testimony of physicians, for it is a medical question. The plaintiff's evidence was entirely silent as to the standard method of diagnosing and treating a case of this nature. Therefore the action of the trial court nonsuiting one defendant and dismissing the other was proper and the judgment for the defendants was affirmed.-Pilgrim v. Landham et al., 11 S. E. (2d) 420 (Ga., 1940).

Birth Control: Materiality of Intent of Vendor of Contraceptives.-A Massachusetts law provides that "whoever sells, lends, gives away, exhibits, or offers to sell, lend or give away an instrument or other article intended to be used for self-abuse, or any drug, medicine, instrument or article whatever for the prevention of conception or for causing unlawful abortion . . ." is guilty of a felony. The defendant, a registered pharmacist, sold some condoms to a police officer who purchased them for the purpose of holding them as evidence. It was admitted by both the defendant and the commonwealth, in a subsequent prosecution of the defendant for violating the foregoing law, that the condom is medically recognized and regarded as a venereal disease preventive and that it is sometimes used to prevent conception as well. The commonwealth produced no evidence indicating that the defendant intended the object of the sale to be used for any unlawful purpose. On this evidence, the defendant was found guilty of the charge against him and appealed to the Supreme Judicial Court of Massachusetts.

The commonwealth contended that since the articles sold by the defendant were susceptible of use for an unlawful purpose, and often were used for that purpose, the mere fact that they were equally susceptible of a lawful use should be disregarded and the sale should be condemned as the sale of articles "for" the prevention of conception. The defendant, on the other hand, contended that the word "for," as used in the law, referred to the intent of the vendor. He argued that the sale of articles susceptible of both a lawful and an unlawful use could not be declared unlawful without actual proof that the vendor knew, at the time he made the sale, that they were going to be used for the unlawful purpose. He also suggested that the commonwealth's construction would include within the prohibition of the statute the sale of many familiar and almost necessary antiseptic. The sale of many familiar and almost necessary antiseptic. The sale of many familiar and almost necessary antiseptic. The sale of many familiar and almost necessary antiseptic.

likewise susceptible of being used to prevent conception. The Supreme Judicial Court admitted that the difficulty in this case resulted from the fact that the articles sold by the defendant were not used exclusively either for the prevention of conception or for the prevention of disease. The declared public policy of . Massachusetts, the court said, is offended by the sale of articles intended to prevent conception; it is also offended by the unchecked spreading of venereal disease, even among those who indulge in illicit sexual intercourse. The insertion of the words "drug" and "medicine" in the law, said the court, made necessary some change in grammatical construction, and precluded, after the words "for self-abuse," the simple adding of the words "or for the prevention of conception or for causing unlawful abortion," and thus making the phrase "intended to be used" patently applicable to all three purposes. To the court there was reason to believe that the words "intended to be used" were in effect to be understood before the word "for" in the two instances in which they are omitted in the law. They may have been omitted, continued the court, either because to repeat them would have made the wording cumbrous or because the word "for" by itself conveys the same idea of intent or purpose.

The court thought that an indication of legislative intent was shown by the fact that in the law the prohibition of the sale, etc., of an "instrument or article . . . for the prevention of conception" is followed immediately by the words "or for causing unlawful abortion." The same instrument or article that would cause a lawful abortion would doubtless cause an unlawful one, the court pointed out, and if a dealer in surgical instruments should be accused of selling to a surgeon an instrument "for" causing unlawful abortion, an inquiry would necessarily be opened as to the purpose for which the particular instrument was sold and intended to be used. It would be strange to hold, the court concluded, that intent and purpose are material in construing the word "for" in the phrase "for causing unlawful abortion," and immaterial in construing the same word in the phrase "for the prevention of conception." The Supreme Judicial Court therefore agreed with the construction contended for by the defendant and reversed the judgment of conviction.—

Commonwealth v. Corbett, 29 N. E. (2d) 151 (Mass., 1940).

Osteopathy: Right of Osteopath to Prescribe Narcotics.—The narcotic act of Pennsylvania provides that its proscriptions shall not apply to "licensed physicians" in the regular course of their practice. The act does not define the term "licensed physicians." The defendant, a licensed osteopath, was indicted for prescribing morphine sulfate in violation of that act. The trial court entered an order sustaining the defendant's demurrer and quashing the indictment, and the commonwealth appealed to the superior court of Pennsylvania.

The defendant contended that a person duly licensed to practice osteopathy was a "licensed physician" within the meaning of the narcotic act. The accepted definition of a "physician," said the superior court, is "a person skilled in physic or the art of healing; one duly authorized to treat diseases, especially by medicines." The court admitted that the word "physician" is most frequently used to refer to a doctor of medicine but said that it also includes the adherents of other schools authorized to treat diseases. Under the Pennsylvania osteopathic act, the court pointed out, osteopathy is recognized as "a complete and independent scientific system." In no less than seven instances in the body of that act, said the court, persons licensed to practice osteopathy are referred to as "osteopathic physicians." Such classification in the very act determining an osteopath's qualifications is, held the court, conclusive evidence that "licensed osteopaths" are "licensed physicians" and therefore within the exception to the prohibitions of the narcotic act. In conclusion, the court advised that if the defendant had exceeded his authority as an osteopath when he prescribed narcotics, "as the information tends to indicate," he should have been charged with practicing medicine without a license rather than with violating the narcotic act.

In a dissenting opinion, two judges pointed out that, under the Pennsylvania statutes, an "osteopath" is defined as an individual licensed "to practice osteopathy," an "osteopathic surgeon" as one licensed "to practice osteopathy and osteopathic surgery," and a "physician" as one licensed "to engage in the practice of

medicine and surgery in any or in all of its branches." These definitions clearly indicated to the dissenting judges that the terms "osteopath," "osteopathic surgeon" and "physician" have three different and distinct meanings. The osteopathic act specifically provides that osteopathy "opposes the introduction of drugs into the body organism as curative agencies" and that the practice of osteopathy is not to be construed as the practice of medicine. Since osteopaths do not practice medicine and do not administer drugs or medicine in the regular course of their practice, continued the dissenting opinion, no specific exception in favor of osteopathy was thought necessary or advisable by the legislature when it enacted the narcotic act. Commenting on the reasoning of the majority based on the fact that the osteopathic act refers to its licentiates as osteopathic physicians, the dissenting judges also pointed out that the veterinary act refers to its licentiates as veterinary physicians. Using the same analogy as that found in the majority opinion, said the dissenting judges, it would be necessary to conclude that the word "physician" in the narcotic act included veterinarian and, in the opinion of these judges, "that was not intended, and is not the

Pursuant to the majority opinion, the judgment in favor of the defendant was accordingly affirmed. Subsequently the Supreme Court refused to entertain an appeal by the commonwealth.—Commonwealth v. Cohen, 15 A. (2d) 730 (Pa., 1940).

Malpractice: Blindness Attributed to Refrigerant; Treatment Allegedly Negligent. - As the plaintiff was attempting to repair an electric refrigerator, an explosion occurred and the refrigerant, sulfur dioxide, came in contact with his eyes. The defendant physician was immediately called and arrived at the plaintiff's home in about fifteen minutes. In the meantime the plaintiff applied a wet compress to his eyes. When the defendant appeared the plaintiff explained how the accident had happened and said he thought the refrigerant was ammonia. The defendant examined the refrigerator however and told the plaintiff that he didn't think it contained ammonia but that he wasn't sure what kind of gas it was. He then made as thorough an examination of the plaintiff's eyes as was possible under the circumstances but did not render any treatment. The plaintiff was advised to stay outside in the fresh air and sunlight for a "couple of hours." At no time during the defendant's visit did the plaintiff complain of any pain. Shortly thereafter, however, the plaintiff experienced pain in his eyes and difficulty in breathing. He was taken to a hospital, where for the next twenty-four hours various fluids of one kind or another were constantly injected into his eyes. No opiates were administered. When he left the hospital the next day he was totally blind, and his sight never returned. Subsequently the plaintiff sued the defendant physician for damages alleged to have been caused by the defendant's negligence. From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Washington.

The essence of the plaintiff's contention was that the defendant did not exercise reasonable care and skill in that he failed to irrigate the plaintiff's eyes with water. Expert witnesses for both parties testified that sulfur dioxide on contact with moisture immediately forms sulfurous acid and that sulfurous acid is very destructive. The plaintiff's expert testified that, in an emergency, the safest thing to do was to throw clean water in the patient's face in an attempt to remove or dilute any fluid or gaseous irritant. He would not admit, however, that such action by the defendant would, either wholly or partly, have saved the plaintiff's vision, although he thought it would probably have diminished the pain. The Supreme Court recalled that the plaintiff had made no complaint of pain during the defendant's visit and further pointed out that during most of that time the plaintiff held a saturated bandage over his eyes. The experts who testified on behalf of the defendant stated that the action of sulfurous acid is so rapid that nothing the defendant could have done would have saved the plaintiff's eyesight. In fact one of them said that damage to the eyes from sulfurous acid is almost instantaneous, a matter of seconds rather than minutes, and that after "a period of a moment or two there would be practically no hope of retention of vision or restoration of vision." These with a se

also warned of the danger of putting ordinary water, which is not sterile and free from bacteria, into an already injured eye.

The Supreme Court held that a physician is not liable merely for making a wrong diagnosis unless an improper treatment follows. Here the defendant could not be held liable, continued the court, for failing to treat a condition of which he was unaware when the evidence showed that, even if he had been fully advised, he would not have acted differently. In conclusion the court held that, in view of the serious disagreement among qualified experts as to the advisability of so doing, the defendant was not guilty of malpractice in failing to apply water to the plaintiff's eyes. The judgment for the plaintiff was accordingly reversed.—Peddicord v. Lieser, 105 P. (2d) 5 (Wash., 1940).

Dental Practice Acts: Extent of Board's Discretionary Powers.-The plaintiff applied for a writ of mandamus to compel the defendant Florida State Board of Dental Exammers to issue him a certificate to practice dentistry in Florida or, in the alternative, to produce in court the examination papers written at certain previous examinations conducted by the board and cause them to be regraded by such method as the court might deem proper. The petition alleged that the preliminary moral, scholastic and professional qualifications of the plaintifi had been duly accepted by the defendant board and that he had passed the required examination with a sufficiently high mark, but that the defendant, even after three examinations, illegally, unlawfully, capriciously and from prejudice "flunked" the plaintiff and refused to issue him a certificate to mactice dentistry. The defendant filed a motion to quash the alternative writ and refused to plead further. The lower court entered an order overruling the defendant's motion and granting the writ, so the defendant appealed to the Supreme Court of Florida.

The Supreme Court said that when an applicant to take the examination for a certificate to practice dentistry has complied with all the requirements of the law and the board has approved his application and admitted him to the examination, it becomes the duty of the board to issue him a certificate if he makes the mark required to pass. The effect of the defendant's motion to quash was to admit as true all facts sufficiently pleaded in the plaintiff's petition. The character and qualifications of the plaintiff were therefore conceded. The Supreme Court admitted that the defendant was vested with some discretionary powers. When an applicant applies and presents his credentials to take the examination, the board is the judge of these and it may reject the applicant if not shown to meet all the requirements. After he has qualified and passed the examination, in the absence of adverse showing, he cannot be deprived of a certificate. Administrative boards, the court pointed out, are vested with no such arbitrary hegemony over individual rights as was charged in this case. "Ours is still a government of laws and not one of men actuated by caprice and arbitrary power. The highest duty of the man or board whose duty is to administer laws, rules or regulations is to see that they bear equally on all persons or groups." Accordingly the Supreme Court held that the writ of mandamus had been properly issued and the judgment for the plaintiff was therefore affirmed .-York v State ev vel. Jones, 197 So. 766 (Fla., 1940).

Medical Practice Act: Suspension of License for Assisting Unlicensed Person to Practice.-The Board of Regents, on the basis of a report by the Committee on Grievances, suspended for six months the defendant's license to practice medicine in the state of New York. It appeared from the evidence that the defendant collaborated with a chemist m attempting to remove a birthmark by the application of a new preparation, the formula for which was secret to the defendant and the chemist. The defendant permitted the chemist to treat and administer the preparation to the patient. The supreme court, appellate division, third department, New York, held that by this conduct the defendant assisted an unlicensed person to practice medicine unlawfully. The judgment of the Commissioner of Education, suspending the plaintiff's license to practice medicine, was therefore affirmed -La Roc v. Beard of Regents of University of State of New York, 23 N. Y. S. (2d) 265 (\ Y', 1940).

# Society Proceedings

#### COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, Apr. 21-23. Dr D. L Cannon, 519 Devter Avenue, Montgomery, Secretary.

American Association for the Study of Goiter, Atlanta, Ga., June 1-3. Dr. Thomas C. Davison, 478 Peachtree St NE, Atlanta, Ga., Secretary. American Association for the Study of Neoplastic Diseases, Winston Salem, N. C., April 23-25. Dr. Eugene R. Whitmore, 2139 Wyoming Ave N.W., Washington, D. C., Secretary.

American Association for the Surgery of Trauma, Boston, June 46. Di Gordon M Morrison, 520 Commonwealth Ave., Boston, Secretary.

American Association of Genito Urmary Surgeons, Hershey, Pa., May 27-29. Dr. Charles C. Higgins, 2020 East 93d St. Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Cincinnati, Apr. 13-17. Dr. Edward C. Holmblad, 28 East Jackson Blvd., Chicago, Managing Director.

American Association of the History of Medicine, Atlantic City, N. J. May 3-5. Dr Henry E Sigerist, 1900 East Monument St, Baltimore, Secretary.

American Association on Mental Deficiency, Boston, May 13-16. Dr. Neil A Dayton, 100 Nashua St , Boston, Secretary.

American College of Physicians, St. Paul, Apr. 2024. Mr. E. R. Loveland, 4200 Pine St, Philadelphia, Executive Secretary.

American Dermatological Association, Hot Springs, Va, May 31-June 4. Dr Harry R Foerster, 208 Last Wisconsin Ave, Milwaukee, Secretary.

American Federation for Clinical Research, Minneapolis, Apr. 2021. Dr. Thomas M. Durant, 3401 North Broad St., Philadelphia, Secretary. American Laryngological Association, Atlantic City, N. J., May 25-27.

Dr. Charles J. Imperatori, 108 East 38th St., New York, Secretary. American Laryngological, Rhinological and Otological Society, Atlantic City, N. J., June 1.3. Dr. C. Stewart Nash, 227 Mexander St., Rochester, N. Y., Secretary.

American Medical Women's Association, Atlantic City, N. J., June 67 Dr. Ada Chree Reid, 102 East 22d St., New York, Secretary.

American Neurological Association, Chicago, June 46 Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 13. Dr. Eugene M Blake, 303 Whitney Ave, New Haven, Conn, Secretary

American Orthopedic Association, Baltimore, June 3.6 Dr Charles W Peabody, 474 Fisher Bldg, Detroit, Secretary.

American Otological Society, Atlantic City, N. J., May 28 29 Dr. Isidore Friesner, 101 East 73d St., New York, Secretary.

American Pediatric Society, Sh. Top, Pa, Apr. 30 May 2. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Psychiatric Association, Boston, May 18-22. Dr. Winfred Overholser, St. Elizabeths Hospital, Washington, D. C., Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 4. Di. Eugene M. Landis, University of Virginia Hospital, Charlottesville, Va., Secretary,

American Society of Clinical Pathologists, Philadelphia, June 57 Alfred S. Giordano, 531 North Main St., South Bend, Ind., Secretary. American Therapeutic Society, Atlantic City, N. J., June 46. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secietary,

American Urological Association, New York, June 1-4. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Arizona State Medical Association, Prescott, May 25 30. Dr. W. Warner Watkins, 15 East Monroe St , Phoenix, Secretary.

Arkansas Medical Society, Hot Springs National Park, Apr. 27-29. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 5-6. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn , Secretary.

California Medical Association, Del Monte, May 4-7. Dr. George H. Kress, 450 Sutter St , San Francisco, Secretary. Connecticut State Medical Society, Middletown, June 34 Dr. Creighton

Barker, 258 Church St , New Haven, Secretary. Florida Medical Association, Hollywood, Apr. 13 15 Dr. Shaler Richard

son, 111 West Adams St., Jacksonville, Secretary, Georgia, Medical Association of, Augusta, Apr. 28 May 1. Dr. E. D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Illinois State Medical Society, Springfield, May 1921. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, Apr. 1517. Dr. Robert L. Parker, 3510 Sixth Ave., Des Moines, Secretary

Kansas Medical Society, Wichita, May 11 14 Mr. C G. Munns, 112 West Sixth St., Topeka, Executive Secretary,

Louisiana State Medical Society, New Orleans, Apr. 27-29. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 28 30, Dr. Richard T. Shielelford, 1211 Cathedral St., Baltimore, Secretary Massachusetts Medical Society, Boston, May 26 27. Dr. Michael A

Tighe, 8 Fennay, Boston, Secretary, Medical Library Association, New Orleans, May 79 Miss Anna C. Holt, 25 Shattuck St , Boston, Secretary

Mississippi State Medical Association, Jockson, Min 1214 Dr. T. M., Dice, P. O. Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, Apr. 27-29. Mr. E. H. Bartelsmeyer, 634 North Grand Bivd., St. Louis, Executive Secretary. National Gastroenterological Association, New York, June 3-5. Dr. G. Randolph Manning, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, Philadelphia, May 6-9. Dr. Charles J. Hatfield, 1790 Broadway, New York, Secretary.

Nebraska State Medical Association, Omaha, May 4-7. Dr. R. B. Adams, 416 Federal Securities Bldg., Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 12-13. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, Apr. 21-23. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New York, Medical Society of the State of, New York, Apr. 27-30. Dr. Peter Irving, 292 Madison Ave., New York, Secretary.

New York State Association of Public Health Laboratories, Cooperstown, May 18. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.

North Carolina, Medical Society of the State of, Charlotte, May 11-13. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Jamestown, May 18-20. Dr. L. W. Larson, 221 Fifth St., Bismarck, Secretary.

Ohio State Medical Association, Columbus, Apr. 28-30. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, April 22-24. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Executive Secretary. Rhode Island Medical Society, Providence, June 3-4. Dr. William P. Buffum, 122 Waterman St., Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 2. Dr. W. S. Spain, 116 East 53d St., New York, Secretary.

Pacific Coast Oto-Ophthalmological Society, Portland, Ore., May 11-14, Dr. C. Allen Dickey, 450 Sutter St., San Francisco, Secretary,

South Carolina Medical Association, Myrtle Beach, May 19-21. Dr. Julian L. Price, 105 West Cheves St., Florence, Secretary.

South Dakota State Medical Association, Sioux Falls, May 13-15. Dr. Clarence E. Sherwood, 107½ Egan Avenue South, Madison, Secretary.
 Tennessee State Medical Association, Memphis, Apr. 14-16. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.

Texas, State Medical Association of, Houston, May 11-14. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

# CENTRAL SOCIETY FOR CLINICAL RESEARCH

Fourteenth Annual Meeting, Held in Chicago, Nov. 7 and 8, 1941

The President, Dr. LAWRENCE D. THOMPSON, St. Louis, in the Chair

(Continued from page 1246)

## Treatment of Parathyroid Tetany

DR. ELMER L. SEVRINGHAUS, Madison, Wis.: Although it has been assumed that the best substitution therapy in hypoparathyroidism is the use of dihydrotachysterol, a recent discussion by McLean indicates that vitamin D is equally effective. Observations on 3 patients with post-thyroidectomy tetany and 1 with idiopathic hypoparathyroidism confirm this point of view. The approximate equivalence in potency is between 1 mg. of dihydrotachysterol (of commercial grade) and 40,000 international units of vitamin D. Comparison of retail costs shows that therapy with the vitamin preparations would cost from \$2 to \$8 as against \$1 for dihydrotachysterol. The greatest differential exists when the two types of material are secured from the same manufacturer. The advantages of using calcium chloride rather than the lactate, gluconate or phosphate as adjuvants in treating tetany are also demonstrable. Doses of 1 Gm. of the chloride are well tolerated if the salt is taken in the form of a 25 per cent solution in syrup of glycyrrhiza.

#### DISCUSSION

DR. ROBERT W. KEETON, Chicago: My associates and I have had an unusually interesting case of tetany under observation for a period of approximately four years. The patient had high grade mitral stenosis with but little cardiac reserve. In the days when total thyroidectomy was popular, this operation was performed on her. After the operative procedure she had a great deal of difficulty with tetany and decompensation. The decompensation did not respond to digitalis or to adequate doses of thyroid. We were able to establish compensation by the use of calcium and by controlling the tetany. This experiment was repeated on several occasions; so it confirms in an interesting

way the problem dwelt on by Dr. Sevringhaus; namely, tetany in a heart on the border of compensation may be a factor in producing decompensation and its control a factor in maintaining compensation. This patient was taking 1,000,000 units a day of vitamin D₂ with indifferent success. We had continually to resort to calcium. We then changed to dihydrotachysterol with a better result, but the control was not entirely satisfactory. She was given a low phosphorus diet with much greater success. While she was on this regimen pellagra developed, which was controlled by therapy with nicotinic acid. At present she is on a general diet and takes a colloidal suspension of aluminum hydroxide and dihydrotachysterol, and her condition is well controlled.

DR. E. PERRY McCullagh, Cleveland: In the treatment of parathyroid tetany it is a practical matter indeed to give the patient as much calcium as possible because all other forms of treatment are expensive. We believe that more total calcium can be given to the patient as calcium lactate than as calcium chloride because as a rule the patient tolerates the lactate much better. In the majority of cases tetany will be completely controlled without any other measures if the patient is given sufficient calcium. Apparently a patient can take large doses of calcium lactate for many years without any disturbance. Our patients with severe tetany are given as much calcium lactate as 3 heaping teaspoons four times a day. This supplies a great deal of calcium, and it would be difficult to give the same amount in the form of calcium chloride. It occasionally happens that the patient does not tolerate calcium lactate in powder form; a simple solution can then be made at home by boiling the drug

DR. CYRIL M. MACBRYDE, St. Louis: I have had the same problem that Dr. Sevringhaus has been describing here. Another practical point is that it is important to keep these patients on a diet as nearly normal as possible. It is not well to keep the patient on a low phosphorus diet all the rest of his life. It is well to supply milk even though it does give the patient a pretty good phosphorus intake. The patient may take a quart of milk a day. I used to use a lot of phosphorus diets and restrict milk, before dihydrotachysterol and vitamin D were available. My experience is that it is no longer necessary to keep the patient on a low phosphorus diet. I believe the condition is more completely and more satisfactorily controlled if the patient is given an ordinary diet. I find that large doses of calcium lactate can be easily taken by patients with parathyroid tetany, and vitamin D can be given; so the control is conpletely satisfactory. I have not seen what Dr. Sevringhaus has spoken of as an unstable blood calcium level. It has been my experience that the blood calcium level has been stable. It has remained practically stable for years in patients given dihydrotachysterol or vitamin D or 10 to 15 Gm. of calcium lactate by mouth a day and no additional phosphorus.

DR. FREDERICK S. COOMBS, Youngstown, Ohio: I have had occasion recently to treat a woman with tetany from postoperative causes. At the start of therapy the blood calcium was 5 mg. per hundred cubic centimeters. In ten days, with the use of dihydrotachysterol and a quart of skimmed milk a day, the blood calcium came up to 8.6 mg. and she was relieved of her symptoms. I have not used additional calcium by mouth. I wonder whether this calcium is not excreted in the intestine.

DR. ELMER L. SEVRINGHAUS, Madison, Wis.: One of the issues that comes of this discussion is the definition of complete control of tetany. It is not as easy to describe as complete control of diabetes or of hypothyroidism, but it ought to be attempted clinically. Complete control does not mean only that there is freedom from tetanic symptoms. This can be confirmed by observations made by the patients given calcium who have no tetanic seizures. They are made much better by therapy with solution of parathyroid, vitamin D or dihydrotachysterol. The definition of complete control needs to be studied. I icel that when the cost of materials becomes lower so that vitamin D or dihydrotachysterol can be used in optimal levels over a

long period, one can secure stability resembling the normal. That is what would be expected if one can supply the deficiency. To date I have had to use minimal doses to secure fair health rather than excellent health. If one can give optimal doses of vitamin D, one can study calcium absorption from the bowel and find how much calcium is necessary for a normal intake.

#### The Distribution of Serum Proteins in Hepatic Diseases as Determined by Electrophoresis

DRS. SEYMOUR GRAY and E. S. GUZMAN-BARRON, Chicago: When serum proteins are subjected to the action of an electric current at low temperatures and in well buffered solutions they migrate according to their electric mobilities. This property was taken advantage of by Tiselius to separate and measure quantitatively the concentration of the different proteins which exist in the blood serum. The Tiselius electrophoresis apparatus, as modified by Longsworth, has been used to study the distribution of the proteins in the blood serum of patients with a variety of diseases of the liver. Electrophoresis patterns of the serum of patients with acute hepatitis reveal an alteration of the distribution of albumin and of the three globulins, alpha, beta and gamma; in most cases in which the albumin-globulin ratio was normal there was observed a large increase of gamma globulin. In cases of cirrhosis of the liver there was an increase of beta and gamma globulin; in cases of stone of the common bile duct and severe jaundice the beta globulin was increased; changes were also observed in cancer of the liver.

#### Palindromic Rheumatism

Drs. Philip S. Hench and Edward F. Rosenberg, Rochester, Minn.: Features of this disease are multiple afebrile attacks of acute arthritis, periarthritis and sometimes also paraarthritis, with pain, swelling, redness and disability of generally one, sometimes several, small or large joints in an adult of either sex. Attacks appear suddenly, develop rapidly, generally last only a few hours or days and then disappear completely but recur at short or long irregularly spaced intervals. Despite the transitory presence of an acute or a subacute inflammatory reaction in joint tissues and a fibrinopurulent exudate in the articular cavity, little or no constitutional reaction of abnormality is evidenced by the results of laboratory tests, and no significant functional, pathologic or roentgenographic residues occur even after years of disease and scores or even hundreds of attacks.

Of 34 patients, 19 were female and 15 male. Patients were aged 13 to 68 (generally 20 to 39) at the onset of the disease, which at the time of their admission to the Mayo Clinic had lasted from three months to twenty-five years (the average was seven years). Attacks had occurred at the rate of two to ten yearly in 9 cases, twenty to sixty yearly in 17 cases, one hundred to two hundred yearly in 3 cases and two hundred and fifty or more a year in 5 cases. Four patients had had "hundreds" of attacks; the other 30 had had at least four thousand, nine hundred and thirty attacks and an average of at least one hundred and sixty-four attacks per patient within the average of seven years of illness, or twenty-three attacks per patient yearly.

Attacks lasted usually one to three, rarely more than seven, days. The intervals between attacks varied from a few days to six months. In 90 per cent of the cases the attacks were monarticular and chiefly in a finger, wrist, shoulder, knee, toe or elbow. Pain was mild to severe; temporary disability was often considerable. Para-articular inflammation of short duration (six to twenty-four hours) at characteristic sites affected 10 patients. Intracutaneous or subcutaneous nodules were present transiently in 3 cases. Anorexia, loss of weight, anemia, leukocytosis and eosinophilia (the last in both blood and tissues) were absent. The sedimentation rate was normal or slightly elevated; moderate lipemia was present. Roentgenograms of joints revealed nothing abnormal. Biopsies showed acute inflammation during atacks but no gross or microscopic abnormalities between attacks; cultures of tissue removed were sterile.

The cause of the disease was not determined. The hypothesis that allergy was the causative factor could not be proved. The disease was distinguished from rheumatoid arthritis, intermittent hydrarthrosis, gout, angioneural arthrosis (Cohen, 1913) and the "allergic rheumatism" of Kahlmeter (1939). Of the many remedies tried none gave impressive results; fever therapy may have modified the condition somewhat. Follow-up data in 27 cases indicated that, although spontaneous cure occasionally occurred, the condition tended to continue with its pattern relatively unchanged, but permanent crippling did not occur despite thousands of attacks suffered during a total of three hundred and seven years of illness (two hundred and forty-two years before plus sixty-five years after admission).

#### DISCUSSION

DR. RICHARD H. FREYBERG, Ann Arbor, Mich.: The syndrome which Dr. Hench has described is indeed interesting. I would urge that every one who sees patients with rheumatic disease keep this description in mind and attempt to identify the condition. It is my belief that there are different types of inflammatory joint disease whose cause is not known, all of which are commonly called "rheumatoid arthritis" even though the syndrome does not have many of the characteristics of rheumatoid arthritis. In other words, I wonder if rheumatoid arthritis is not the wastebasket into which various types of rheumatic disease incompletely understood and not readily identified as distinct forms of rheumatism are unjustifiably thrown. Certainly the condition in the cases described by Drs. Hench and Rosenberg does not seem to be like the commonly recognized types of rheumatic disease. The follow-up study of these cases will be interesting. I should like to ask whether there is any tendency for this disease to occur in families.

DR. LEE FOSHAY, Cincinnati: Was there opportunity to try animal transmission experiments with materials obtained from any of these patients?

Dr. Lawrence D. Thompson, St. Louis: I have been following a patient in St. Louis for nine months whose condition unquestionably corresponds to the condition described. There are two interesting facts in this case. In the first place, Dr. Foshay might be interested to know that the agglutinations for the patients with undulant fever were positive in a dilution of 1:120. The second point is that, by merely prescribing for this patient a diet from which I had eliminated six or eight foods which in my own experience have been most common allergic offenders, I was able to reduce the symptoms from daily intervals. In other words, I seemed to get some improvement by working along the allergy line. I should like to know whether Dr. Foshay has seen patients with undulant fever with symptoms similar to those described by Dr. Hench.

DR. PHILIP S. HENCH, Rochester, Minn.: We found no familial or hereditary features in this disease. To answer Dr. Foshay's question, we could not prove the infective nature of palindromic rheumatism. The attacks bore no relationship to acute exogenous infections, such as sore throats and influenza. Most of the patients had had their foci of infection removed without relief before we saw them. Cultures of material from remaining foci revealed no significant organisms; the bacteria found therein produced no positive cutaneous reactions in patients or significant lesions in animals. Cultures of material removed for biopsy were sterile. However, we did not do what Dr. Foshay suggests, i. e. grind up a nodule or other affected tissue and use this material for inoculation experiments. We will try to do that. Agglutination tests for Brucella abortus were made in 5 cases: they gave negative results in 4 and a slightly positive result (1:80) in 1, a reaction of doubtful significance. None of our patients had fever. I agree with Dr. Thompson that the allergic hypothesis seems attractive. We did our best to prove it but could not do so. Points against the allergic hypothesis were (1) the complete absence of orthodox clinical allergy in many of the cases, (2) the generally negative cutaneous reactions to various antigens including suspected foods, (3) the absence

of eosinophilia in blood or affected tissues, (4) the lack of resemblance between the pathologic reactions we noted in palindromic rheumatism and those in conditions known to be allergic (for example, urticaria), (5) the generally negative effect of epinephrine and histaminase and of histamine desensitization, (6) the negative provocative effect of histamine in large doses and (7) the negative results of provocative and therapeutic tests with suspected foods. One or two of our patients felt somewhat better (perhaps having fewer, shorter attacks) when they adhered to a diet free of suspected food antigens; the diet certainly did not stop the disease, although it may have modified it. I fully agree with Dr. Thompson that further investigation along the lines of allergy in this disease are in order, but my colleagues at the Mayo Clinic in the section for allergic diseases have about despaired of proving the presence of allergy. It is of special significance that 3 of our patients were physicians; they had been long puzzled as to the nature of their disease and had long since rejected as entirely inappropriate diagnoses such as rheumatoid arthritis or those of other known diseases of ioints.

#### Cerebral Oxygen Consumption Following Experimental Injury to the Head

Drs. John L. Lindquist and George V. Leroy, Chicago: To investigate the pathogenesis of the symptoms of cerebral concussion, studies of the cerebral oxygen consumption and cerebral blood flow were made. A Rein type thermostromuhr was used to measure the cerebral minute blood flow, and the arteriovenous oxygen difference was determined manometrically on blood drawn simultaneously from an artery and a jugular vein. All experiments were performed on dogs lightly anesthetized with soluble pentobarbital. In the first experiments cerebral blood flow and oxygen consumption were measured at intervals from twenty to forty minutes after a severe cranial trauma. The usual result of the injury was a rapid and early decline in both the blood flow and the oxygen consumption. In a series of 8 dogs the decrease in the former value averaged 17 per cent and in the latter 24 per cent.

Another series of observations was made on 10 dogs whose heads were traumatized twenty-four hours earlier. At this time the following deviations from normal were observed: (1) The cerebral blood flow averaged 19 per cent below normal; (2) the cerebral oxygen consumption averaged 21 per cent below normal; (3) the arterial oxygen saturation was 73, 76, 78, 81, 84, 89 and 91 per cent, respectively, in the dogs for which it was determined. It was apparent from the data that the altered oxygen consumption of the brain was not due to stasis or to arterial hypoxemia but was due to an inability of the brain to utilize the gas.

The fact having been established that the cerebral oxygen consumption and blood flow were still subnormal twenty-four hours after injury, it was desirable to observe the influence of two commonly used therapeutic agents on these functions. Four of the animals studied twenty-four hours after injury were given hypertonic sugar solutions, and from 3 cerebrospinal fluid was removed by cisternal drainage. Three animals were used for controls. The injections of hypertonic solutions of dextrose and sucrose had no effect on the blood flow. This is in accord with other investigators' studies. The effect on oxygen consumption, however, was striking. With 50 per cent sucrose solution, oxygen utilization increased by 45 and 100 per cent. With dextrose the increases were 90 per cent and 130 per cent respectively. After cisternal drainage there was a 25 per cent improvement in the cerebral blood flow. The oxygen consumption increased 100 per cent and 260 per cent in 2 instances. For technical reasons there was no apparent change in the third animal. Suitable control experiments were performed.

These experiments demonstrate a physiologic basis for the altered cerebral activity after injury to the head severe enough to cause contusion. They show also that if reduced cerebral oxygen consumption occurs it may be corrected by the administration of hypertonic solutions of dextrose and sucrose or by the drainage of cerebrospinal fluid. We think that these experi-

ments in addition to suggesting a reason for the alterations in consciousness suggest also a rational basis for the use of two common therapeutic agents.

#### The Use of Poudrage in Chronic Pneumothorax and Cystic Disease of the Lung

Dr. DAN W. Myers, St. Louis: In 25 of 45 instances of spontaneous pneumothorax observed the pneumothorax was of the so-called benign variety unaccompanied by recognizable pulmonary disease. Prompt closure of the pleuropulmonary communication and reexpansion of the lung ensued in all but I case. After protracted rest, intrapleural instillations of blood and dextrose and the trauma of thoracoscopic inspection of the pleura had failed to produce closure of the fistula, pleural poudrage was carried out, 5 Gm. of iodized talc being sprayed into the pleural space. Prompt sealing of the pleurapulmonary communication and reexpansion of the lung resulted. The belief is expressed that iodized talc is a more effective agent for the production of aseptic pleuritis than the agents previously employed in the obliteration of such fistulas. Treatment of a giant tension cyst of the lung by means of intracystic powdering with iodized tale also was successful.

#### DISCUSSION

Dr. WILLIAM H. BUNN, Youngstown, Ohio: In 1924 I had a patient aged 46 who had dyspnea produced by a collection of fluid in the right side of the chest. On withdrawal of the fluid there were many cholesterol crystals; their presence, of course, suggested that the fluid had been present for months or years. Repeated withdrawal of the fluid meant only that it recurred. Artificial pneumothorax was instituted after each withdrawal of fluid. Still the fluid kept forming. The patient unfortunately had a fall down several steps and struck her side forcibly enough to tear the lung. After this high air pressure built up in the right thoracic cavity. This required aspiration on several occasions. Finally gomenol (a cajuput oil from Melalenca viridiflora) was instilled, adhesions quickly formed and complete recovery occurred. In 1 other case gomenol was successfully instilled into the pericardial sac of a boy who had required (until this measure was instituted) repeated tappings to relieve the pressure of accumulations of pericardial fluid. There is a place in clinical medicine for some stimulant to the formation of adhesions.

#### Urea and Sulfonamide Urolithiasis

DRS. SIDNEY S. SOBIN, LAWRENCE M. ARONBERG and HARRY ROLNICK, Chicago: Previous studies on the solubility of the acetyl sulfonamides in human urine (presented before this society in November 1940) demonstrated that the solubility of these substances increased in urine of increasing specific gravity (or concentration). The probable relationship of this unusual phenomenon to an increasing amount of urea was suggested and evidence presented.

In the present work the effect of urea on the renal concretions resulting from the oral administration of sodium acetylsulfapyridine to white rats was studied. Animals receiving sodium acetylsulfapyridine with and without urea were studied for seven to nine days. Changes in weight, water intake and general nutrition were noted. Animals treated with sodium acetylsulfapyridine alone frequently presented hematuria which was not constant from day to day. Hematuria, however, was not observed in any of the rats receiving urea with the drug. The animals not receiving urea frequently appeared ill and listless and took their food poorly. This was not true of the urea treated rats.

Microscopic review of the kidney tissues revealed concretions in many of the animals receiving sodium acetylsulfapyridine alone. In animals receiving urea as well, no concretions were found. Extreme cloudy swelling and simple necrosis of the tubular elements and loops was encountered in the controls. This was only rarely seen in the urea treated rats.

It is suggested that urea has some solvent action on acetylsulfapyridine crystals in vivo as well as in vitro.

(To be continued)

# Current Medical Literature

#### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time, Periodicals are available from 1932 to date. Requests for issues of Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtuned for permanent possession only from them

Titles marked with an asterisk (*) are abstracted below.

## American Heart Journal, St. Louis

23:1-146 (Jan) 1942

Some Immediate Causes of Cardiac Infarction E P. Boas, New York, -p 1. Heart Disease and Public Health: Current Trends and Prospects.

L. I. Dublin, New York -p. 16

*Value of Combined Measurements of Venous Pressure and Arm to
Tongue and Arm to Lung Circulation Times in Study of Heart
Failure. H. H. Hussey, J. J. Wallace and J. C. Sullivan, Washington, D. C .-- p. 22.

ton, D. C.—p. 22.

Action of Angiotomi on Completely Isolated Mammalian Heart. V.

Lorber, Minneapolis—p. 37.

Autonomic Mechanism of Heat Conservation and Dissipation: II.

Effects of Cooling Body, Comparison of Peripheral and Central

Vasomotor Responses to Cold. O. R. Hyndman and J. Wolkin, Iowa

City mp. 43. City .-- p. 43

*City.—p. 43

*Clectrocardiographic Study of Effects of Boxing. J. S. Butterworth and C. A Poindexter, New York—p 59

*Recording of Fetal Electrocardiogram. J W Ward and J. A Kennedy, Nashville, Tenn—p 64.

Study of Seventy Rheumatic Families A Rosenblum and Ruth L.

*Recording Checken p. 71

Study of Seventy Rheumanic Tammies A Rosenshum and Radia 2. Rosenshum, Chicago —p 71.

Resting Blood Flow and Peripheral Vascular Responses in Hypertensive Subjects D. I. Abramson and S. M. Fierst, Cincinnati.—p. 84
Coarctation of Aorta in Children: Syndiome of Constriction of Isthmus of Aorta, with Involvement of Origin of Lett Subclavian Artery.

S. P. Schwartz and D. Greene, New York—p 99.

Improved Blood Pressure Cuff. W. S. Collens and L. C. Boas, Brook-

lyn -p. 114. evice for Obtaining Electrocardiographic Lends from Precordium, M. S. White, Randolph Field, Texas —p. 116

Venous Pressure and Circulation Time in Heart Failure.-Hussey and his co-workers made one hundred and eighty-five simultaneous measurements of the venous pressure and circulation time of 100 patients with congestive heart

failure. The study shows that the venous pressure is abnormally elevated or shows a significant rise when the abdomen is compressed and that the arm to tongue and the arm to lung circulation times are usually prolonged. When clinical improvement occurs the arm to tongue circulation time may remain prolonged after all other signs of heart failure have disappeared. This presumably indicates the persistence of left ventricular failure. The study of 7 patients suggested isolated left ventricular failure; the venous pressure and the arm to lung circulation time were normal, but the arm to tongue circulation time was prolonged. Among 34 patients with general heart failure the lung to tongue circulation time was within normal limits. This tends to impair the value of this measurement in the diagnosis of isolated right ventricular failure. In heart failure the venous pressure may be abnormally high or rise significantly on abdominal compression when other signs of failure are lacking. Repeated measurements of the venous pressure and circulation time in heart failure afford an objective means of following the course of the disease and are necessary for accurate diagnostic appraisal. The measurements often can be of value in ruling out heart failure.

Effect of Boxing on the Heart.—Butterworth and Poindexter obtained electrocardiograms of 35 boxers (16 to 24 years of age) before and after bouts. Before a bout the average heart rate was 81, and after the bout it was 115 beats a minute. Sinus arrhythmia was common before matches but was absent or slight at the higher rates after the matches. After the exercise there was a definite increase in the height of P: and P: and a decrease in the size of the T waves. The study presents no evidence that boxing has any traumatic effect on the normal heart of the young boxer,

Fetal Electrocardiogram.-Ward and Kennedy made fortysix recordings of the fetal heart beat during various stages of intrauterine life. They used a three channel, balanced amplifier and crystograph, an instrument developed to record electro-encephalograms. Three abdominal leads were usually employed and were placed to form an equilateral triangle over the uterus. The curves were recorded in ink on paper by the crystograph, a permanent record thus being made. No developing was necessary. The length of pregnancy was calculated by assuming that conception occurred fourteen days after the last normal menstrual flow began. The fetal deflections measure about 30 microvolts The fetal waves usually appear in one lead. Deflections were produced in thirty-one of the forty-six records. The remainder showed no definite fetal deflections, except one which was questionable. No positive tracing was obtained earlier than the sixteenth week of pregnancy. There was a sharp dividing line between the positive and negative records near the end of the fourth month. From the sixteenth week thirty-eight records were taken, and thirty-one of these were positive. For comparison records were made of 1 woman on the same day with the ordinary electrocardiographic apparatus and with the Offner amplifier and crystograph. With the former instrument, even with double standardization, no fetal waves were shown, but good fetal waves were obtained with the crystograph. The method should prove useful in the diagnosis of pregnancy, in ascertaining whether the fetus is living, in the diagnosis of multiple pregnancy and, experimentally, as a tool for studying fetal physiology.

#### American Journal of Hygiene, Baltimore 35:1-162 (Jan.) 1942

Multiple Scierosis Problem in Baltimore City. L. C. Kolb, O. R. Lang-

worth and Marie Cakrtova, Baltimore —p. 1.

Statistical Problems Involved in Application of National Institute of Health Swab for Diagnosis of Oxyuriasis W. Sawitz, New Orleans, and B. D. Karpinos, Washington, D. C .- p. 15.

*Influence of Atmospheric Temperature and Humidity on Dryness of Oral Mucosa, C.-E. A. Winslow, L. P. Herrington and Jean Hume Nelbach, New Haven, Conn.—p. 27.

Nelbach, New Haven, Conn.—p. 27.

Effect of Epinephrine on Toxicity of Nicotine. H. B. Haag and R. S. Fisher, Richmond, Va.—p. 40.

Diphtheria in Baltimore: Tonsillectomies as Related to Diphtheria Carrier Rates K. F. Maxev, J. J. Phair, Baltimore, and Mary Ruth Smith, Jackson, Miss.—p. 42.

Id: Carrier Rate in Twelve Surveys, 1921-1939. J. J. Phair, Baltimore, and Mary Ruth Smith, Jackson, Miss.—p. 47.

Study in Active Immunization Against Epidemic Influenza and Pneumococcic Pneumonia at Letchworth Village: III. Results of Active Immunization Against Epidemic Influenza from 1937 to 1940.

M. Siegel, R. S. Muckenfuss, M. Schaeffer, Harriet Leslie Wilcox and Ann G. Leider, New York.—p. 55.

Environmental Control of Epidemic Contagion: I. Epidemiologic Study of Radiant Disinfection of Air in Day Schools. W. F. Wells, Mildred W. Wells and T. S. Wilder, Philadelphia.—p. 97.

Study of Certain Epidemiologic Features of Leptospiral Jaundice in Baltimore. T. G. Ward and T. B. Turner, Baltimore.—p. 122.

Inoculation of Canaries with Sporazoites from Isolated Malarial Oocysts. M. M. Brooke, Baltimore—p. 134.

Study of Persence Presidents from Value V. F. Mells, M. Study of Persence Reselvence.

M. M. Brooke, Baltumore—p. 134
Study of Paroxysms Resulting from Induced Infections of Plasmodium
Vivax. G. R. Coatney and M. D. Young, Columbia, S. C.—p. 138.
Feeding Habits of Gambusia Affinis Affinis, with Special Reference to
Malaria Mosquito Anopheles Quadrimaculatus. A. D. Hess and C. M.

Tarzwell.-p. 142.

Respiratory Metabolism of Malaria Parasite Plasmodium Cathemerium During Its Developmental Cycle. S. F. Velick, Baltimore.-p. 152.

Atmospheric Conditions and Oral Mucosa,-Winslow and his collaborators determined the effect of various degrees of temperature and humidity on the mucous membranes of 4 subjects. With a vapor pressure of up to or above 110 inch of mercury the moisture of the surface of the oral mucosa, depending on variations in temperature and humidity, varied from a moderately high to an extremely high value. The variations were attributed to the physiologic changes in the vascular system of the mucosa. With vapor pressures below 1/10 inch there was a definite dryness of the oral mucosa; its surface moisture was about half that observed at higher vapor pressures. The authors conclude that a pronounced drying effect on the mucosa must occur at air temperatures below 53 F. with any moisture content, at 60 with less than 77 per cent relative humidity, at 70 with less than 54 per cent relative humidity and at 80 F. with less than 39 per cent relative humidity. Whether the drying effect is harmful has not been determined. but, if it is harmful, outdoor air in winter must have as serious

an effect as dry indoor air The effect can be controlled indoors with an air temperature of 70 F and a relative humidity of more than 50 per cent

Radiant Disinfection of Air.-The Wellses and Wilder report experiments which demonstrate that con med atmospheres of habitations constitute a vehicle for the epidemic spread of contagion During the four years in the Germantown Friends School and the one year in the Swarthmore public schools when the air of the schoolrooms was irradiated there was no epidemic spread of contagion among the highly susceptible primary school children, although contagion did spread among less susceptible groups of older children in other departments of the schools whose rooms were not irradiated The results suggest that the occurrence of contagious diseases at unfavorable times (measles in midwinter, when the danger of complicating streptococcic infections is high) and in unfavorable situations (such as that of an army in barracks) can be prevented by irradiation of air

# American J. Obstetrics and Gynecology, St. Louis 43:1-182 (Jan) 1942 Partial Index

Nutrition Study in Pregnancy Dietary Analyses of Seven Day Food Intake Records of 514 Pregnant Women, Comparison of Actual Food Intakes with Variously Stated Requirements and Relationship of Food Intake to Various Obstetric Factors P F Williams and Food Intake to Various Obstetric Factors Florence G Fraim, Philadelphia - p 1

*Clinical Evaluation of Fetal Electrocardiography Study of 100 Cases Bernstein and H New Technic and Improved Instrument

Mann, New York -p 21
*Glomerular Filtration and Renal Blood Flow in Toxemias of Pregnancy L V Dill, C E Isenhour, J F Cadden and N K Schaffer, New York—p 32

Simultaneous Radiologic and kinetic Recording of Uterine and Tubal Mothity. M D Mayer, H Newman and A M Ginzler, New York

Study of Thirteen Cases R R de Alvarez, Ann Chorionepithelioma

Gynecologic Tuberculosis Brief Review of Thirty Two Cases Including Arbor, Mich -p 59 One of Tuberculous Cervicitis E Eichner, A Bookatz and L Hirsch

*Further Studies on Sterile and Fertile Periods in Women L J Latz

*Further Studies on Sterile and Fertile Periods in Women L J Latz and E Reiner, Chicago — p 74
Inhibition of Lactation During Puerperium by Methyl Testosterone P M Lass New York — p 86
Caffeine as Aid to Sodium Pentobarbital Analgesia in Labor A F Daro and P J Stein, Chicago — p 94
Use of Quick Treezing Methods in Gynecologic Practice Preliminary Report F E Hall, Chicago — p 105
Bilateral Tubal Pregnancy M E Cox and M Steinberg, Charleston, S C — p 120

Desmoid Tumor of Back J A, Tuta and E W Fischmann Chicago

—p 124
"Frog' Test (Aenopus Laevis) as Rapid Diagnostic Test for Pregnancy
"Frog' Test (Aenopus Laevis) as Rapid Diagnostic Test for Pregnancy
Prediging Test (Aenopus Laevis) as Rapid Diagnostic Test for Pregnancy
"Frog Preliminary Report A I Coates, New York -p 135

Fetal Electrocardiography -Bernstein and Mann recorded heart beats of 100 fetuses whose mothers were unselected consecutive patients presenting themselves at an antepartum clinic at the fifth or sixth month of gestation Only 13 mothers were seen before the fifth month The instrument used was the "cardiette," an unusually sensitive amplifying apparatus capable of detecting deflections up to 6 cm per millivolt and having approximately six times the sensitivity of the standard string galvanometer In only 2 cases were satisfactory fetal curves not exhibited at some time during pregnancy. Of one hundred and fifty-three tests performed on the 100 patients 75 per cent showed clearcut fetal curves No positive electrocardiograms were obtained earlier than the fourth lunar month vidual monthly percentage of positive results ranged from 538 to 965 per cent, the average from the fourth to the tenth lunar month was 778 per cent In the last two months 96 per cent of forty-eight readings were positive. The fetal heart rate does not indicate the sex of the fetus, since the heart rates of infants of both seves averaged 1487 beats per minute. There was a tendency for a gradual but definite decline in the fetal heart rate to the eighth lunar month, from then on to delivery there was a slight rise Fetal and maternal rates were not correlative, a change in one was not necessarily accompanied by a corresponding alteration in the other The electrocardiogram furnished a reliable diagnostic test in pseudocvesis of the menopause, pregnancy suspected in amenorrhea with a large fibroid and huge ovarian exst and in missed abortion. The electrocardiogram was successful in indicating fetal viability in 4 instances in which fetal movements were not felt and the fetal heart was maudible. One multiple pregnancy was accurately diagnosed Generally, fetal hearts show sinus arrhythmias and sometimes extrasystoles and varying degrees of partial block A peculiar increased rate is produced in the presence of intrauterine anomalies In instances of doubtful viability an electro cardiogram is indicated before cesarean section is performed

Renal Blood Flow in Toxemias -Dill and his associates determined the inulin and diodrast clearances of 8 normal pregnant women who were within one month of term, had had no previous history of hypertension or tovemia of pregnancy and had not had changes of blood pressure in the retinal vessels or albuminuria, of 10 patients who had albuminuria, the albumin in the urine amounting to more than 2 Gm a day, hypertension edema and a rapid gain in weight but no antecedent history of "toxemia of pregnancy" and who were classified as having "severe preeclampsia," and of 10 patients who had moderate to definite hypertension, mild to moderate albuminuria, a previous history of hypertension and changes in the eyegrounds and whose previous pregnancies were classified as "toxemic" the "preeclamptic" and "hypertensive" patients the postpartum glomerular filtration tended to return to normal and the renal blood flow fell to a level definitely below normal. The same mechanism that produces hypertension without pregnancy prob ably is operative in the woman with "toxemia of pregnancy Pregnancy modifies the disease quantitatively in that the renal blood flow is maintained despite moderate renal arteriolar constriction and qualitatively in that the afferent arteriolar tone is increased to a greater extent than in the nonpregnant hypertensive patient, but the differences are merely quantitative modifications of the same fundamental vascular abnormality

Sterile and Fertile Periods in Women -Latz and Reiner present a compilation of the data of some 1,000 record calendars sent in within the last year and a half by women who kept written records of menstruation, coition and ovulation for a number of years For example, seven hundred and eighty-four thirty day cycles were recorded for 342 women, these same women also had other cycles Ovulation and the number of cottons had on the various days of the cycle were recorded For example, the 223 women who had, collectively, seven hun dred and twenty-four twenty-four day cycles had among them ten cottions on the second day after the onset of menstruation, thirty-two on the third, seventy-eight on the fourth and so on All told, there were 11,249 cycles and 49,356 contions listed with no conceptions Practical proof that ovulation must occur at about the time generally believed, that the time for fertilization of the ovum is short and that the life of the sperm cells in the female genitals is limited to less than forty-eight hours is had a number of pregnancies would have occurred, as it cannot be assumed that more than an average percentage of the couples furnishing the data were sterile. The authors believe that the data on 4702 contions of 114 couples (reported in THE JOLENIA, Oct 19, 1935, p 1241), on 11,222 contions of 265 couples (Illinois Medical Journal 71:210 [March] 1937) and on 54,027 contions (under discussion) executed during the sterile period support the evidence that abstinence during the fertile period (as origi nally propounded by Knaus) prevents conception

# American Journal of Orthopsychiatry, Menasha, Wis.

12:1-190 (Jan ) 1942 Partial Index

Direct Psychotherapy in Adolescence of Case Presentation of Gitcle in El Talstein Chicago—p 1

Problem of the Pre-chool Child H. S. Lippman, St. Paul Margaret W. Gerard Chicago and Edith B. Jackson New Haven Conn.—1, 42

Chinical Application of Test of Imagination to Neurotic Children. Practice and Prognostic Significance of Differences Between Intillational Conference and Prognostic Significance of Differences Between Intillational Conference and Social Quotient. If Relationship of Intelligence Quotient and Social Quotient to Age Level of Behavior Problem Children. L. A. Lurie Horence M. Resenthal and Louisa C. O. t. cold Concennation—p. 104

Group Studies of Preadolescent Delinquent Boys Spontaner is Grein Formations on Children's Psychiatric Ward of Relleum Host is Pauline Rosenthal, New York — p. 115

The Stuttering Personality J F Bender Flushing J — p. 140

Child Guidance in Kindergarten to 6B Elementry Selvet Chief Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Elementry Selvet Guidance in Kindergarten to 6B Ele

# American Journal of Physiology, Baltimore 135:259-522 (Jan.) 1942. Partial Index

Iron Absorption in Absence of Bile. P. W. Smith and L. A. Crandall Jr., Memphis, Tenn .- p. 259.

Studies on Biologic Utilization of Esters of Pantothenic Acid. K. Unna and C. W. Mushett, Rahway, N. J .- p. 267.

Effects of Asphyxia, Anoxia and Myocardial Ischemia on Coronary Blood Flow. H. D. Green and R. Wégria, Cleveland.—p. 271.

Reversals of Blood Pressure Responses Caused by Changes in Frequency of Brain Stem Stimulation. C. Berry, W. McKinley and R. Hodes, Chicago .- p. 338.

Renal Blood Flow in Experimental Renal Hypertension. A. C. Corcoran and I. H. Page, Indianapolis .- p. 361.

Mechanisms for Maintenance of Life in Newborn During Anoxia. H. E. Himwich, A. O. Bernstein, H. Herrlich, A. Chesler and J. F. Fazekas,

Albany, N. Y.-p. 387. Thyroid and Parathyroid Hormone Effects on Calcium and Phosphorus M. A. Logan, W. R. Christensen and J. W. Kirklin, Metabolism. Boston .- p. 419.

Temperature Sensation: Spatial Summation of Heat. C. M. Herget and

J. D. Hardy, New York, p. 426.
Distribution of Available Water in Animal Body. L. J. Flemister,
Durham, N. C. p. 430.
Central Pathway for Jaw Jerk. F. Harrison and K. B. Corbin, Mem-

phis, Tenn .- p. 439.

Effect of Adrenal Cortical Compounds on Ketosis. R. A. Shipley,

Cleveland, and Edith G. Fry, New Haven, Conn.—p. 460.
Increased Requirements of Pantothenic Acid and Vitamin Ba During Experimental Hyperthyroidism. V. A. Drill and R. Overman, Princeton, N. J.-p. 474.
In Vivo and In Vitro Exchange of Phosphorus by Enamel and Dentin.

C. P. Barnum and W. D. Armstrong, Minneapolis. p. 478.
Bone and Tissue Phosphatase in Experimental Scurvy and Studies on

Source of Serum Phosphatase. B. S. Gould and H. Shwachman, Boston,-p. 485.

Calcium in Gastric Mucus and Regulation of Gastric Acidity. Rhoda Grant, Montreal, Canada .- p. 496.

#### Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill. 47:1-190 (Jan.) 1942

Philosophical and Practical Aspects of Economics of Cancer Control: Janeway Lecture, 1941. E. H. Skinner, Kansas City, Mo.-p. 1. Cancer of Nasal Cavity. W. S. MacComb and H. E. Martin, New York.

*Irradiation Pulmonary Fibrosis, B. P. Widmann, Philadelphia .-Carcinoma of Lower Lip: Interval Statistical Survey of End Results in All Cases Treated at Brooklyn Cancer Institute, 1930 to 1939 Inclusive. W. E. Howes and F. J. La Rosa, Brooklyn .- p. 39.

Results of Conservative Treatment in Certain Cerebral Gliomas. Jenkinson and E. Oldberg, Chicago.—p. 50.
*Irradiation Sickness: Critical Study. S. S. Steinberg, Butte, Mont.—

p. 56.

*Discussion on Surveys on Chest, with Comments on 14 by 17 Inch Film as Used in Canadian Army. G. E. Richards, Toronto, Canada.—p. 66. Technical Factors Underlying Miniature Roentgenography of Chest. II. E. Potter, Chicago .- p. 71.

Particulation of Methods for Mass Survey of Chest. A. C. Christie, Washington, D. C.—p. 76.

Value of Body Section Roentgenography (Planigraphy) for Demonstration of Tumors, Non-Neoplastic Disease and Foreign Bodies in Neck and Chest. B. R. Young, Philadelphia,—p. 83.

Fractures of Pelvis, with Special Reference to Associated Fractures of Sacrum. W. W. Furey, Chicago.—p. 89.

Time of Appearance and Fusion of Ossification Centers as Observed by Roentgeographic Methods. H. Fledge, Cairne, New Operators.

Roentgenographic Methods. H. Flecker, Cairns, North Queensland, Australia .- p. 97.

Irradiation Pulmonary Fibrosis .-- Widmann made a clinical and roentgenologic study of chests of 273 patients who had received irradiation to the chest for cancer. Pulmonary fibrosis with atelectasis was a permanent change and appeared in varying degree within two to twelve months after irradiation with an intensity of 1,600 to 2,000 roentgens in one cycle and with doses of 3,000 to 6,000 roentgens in two or more cycles to each of three or four cutaneous ports. Of the 273 patients, 62 showed roentgen evidence of fibrosis, and 53 of them had metastatic complications as revealed clinically, roentgenographically and/or at necropsy. Identical procedures of irradiation caused pulmonary fibrosis in only 9 patients who were clinically free from cancer from three to ten years. This is the approximate incidence of irradiation fibrosis for so-called normal lungs. Roentgen determination of irradiation fibrosis complicating and accentuating metastatic cancer or other possible pathologic factors (infection, arteriosclerosis and advancing age) are fraught with many complexities and inconsistencies; so interpretations and conclusions may be controversial. Standards of evaluation are only approximate estimations.

Carcinoma of Lower Lip .- Howes and La Rosa report 74 cases of cancer of the lower lip treated at the Brooklyn Cancer Institute between 1930 and 1940. Only 1 patient was a woman. The youngest patient was 32, and the oldest had passed his eighty-sixth year; the average age for the series was 62. Treatment for 59 of the patients had a satisfactory result, and that of 15 was a failure. The result was deemed satisfactory if after six months there was no evidence of extension. Three patients have died of intercurrent disease-heart disease, tuberculosis and the like-but with no evidence of recurrence or spread of the carcinoma. The result was considered a failure if local or metastatic spread of the cancer occurred. Of the other 8 patients who died in the (failure) series it is known that further extension to the submental or the submaxillary region of the cervical lymphatics developed before death. Many of these had carcinoma and osteomyelitis in the mandible. Surgical intervention and radium or roentgen therapy to the local lesion were equally efficient in producing a cure. If the local lesion is controlled, block dissection of the cervical lymphatics offers the greatest hope of cure.

Irradiation Sickness.—The various remedies that Steinberg used for alleviating irradiation sickness included slow irradiation technic, administration of liver extract or of vitamin B₁, screening and high sodium chloride intake. An analysis of 103 consecutive instances of irradiation sickness, based on the development of lassitude (for which 15 per cent is subtracted from the effectiveness of the drug or physical means), nausea (15 per cent subtracted), anorexia (15 per cent), vomiting (25 per cent) and exhaustion (30 per cent), shows that the slow technic (200 roentgens or less being given daily) was 82 per cent effective, therapy with sodium chloride (10 Gm. daily) 77 per cent, oral administration of liver extract 70 per cent, intramuscular administration of liver extract 51 per cent, vitamin B₁ therapy 44 per cent and screening had no effect. None of the methods appear specific; most of them are beneficial either through improvement of the general condition of the patient or through the psychic effect resulting from the added attention that the patient receives. In the recommendation of drugs or any other means for combating irradiation sickness one should take into consideration the condition of the patient, the area or site to be irradiated, the size of the ports, the number of roentgens given daily, the ratio of the scheduled to the total dose and the fact that irradiation sickness does not develop in many cases even though large daily and total doses are given.

Surveys of Chest.-Richards states that the roentgen examination of recruits for military service not only excludes carriers of the tubercle bacillus but obviates the breakdown of enlisted men in whom pulmonary lesions are unsuspected and protects the country from enormous hospitalization and pension expense. In Canada the 14 by 17 inch (35.5 by 43 cm.) film was accepted largely because of its almost universal availability. At first civilian roentgenologists donated their services, to whom \$2 was paid for the film, its development and the filing envelop. In Ontario it has been calculated that the approximate cost to find each case of tuberculosis was \$500. After that it costs the province approximately \$1,000 to treat each patient with minimal, \$3,000 for each with moderately advanced and \$5,000 for each with advanced tuberculosis. But in the case of a soldier in whom tuberculosis develops the expense is \$25,000. This includes his hospitalization, as for the civilian, his life pension and usually a living allowance for his wife and family. The author believes that nontuberculous pulmonary infection has received far too little attention. In the army nontuberculous infection can be as crippling as tuberculosis, and the hospitalization and pension cost is four to six times that for tuberculosis. Figures from the director general's office indicate that during the recruitment of 328,325 men the single 14 by 17 inch roentgenogram was responsible for the rejection of 5,273; 3,076 had tuberculous and 1,088 nontuberculous pulmonary disease, and the rest had cardiac or other conditions. There were eleven "personal" errors due to interpretation, and sixteen other errors were inherent in the method and unavoidable. Even if other errors are discovered later the single 14 by 17 inch roentgenogram has proved extremely accurate, and it is amply justified on economic grounds. Guided by the statistics of the last war, the investment of some \$600,000 for the roentgen survey has

resulted in a saving to the country of more than \$20,000,000. In one unit of 800 men, of which the author has knowledge, 20 had open tuberculosis. The roentgen examination of these men cost the country \$1,600 and might be said to have saved \$80,000 to \$100,000. The potential saving is far greater when the possibility of the infection of others is considered. Up to the end of May 1941, 895 men were discharged from the Canadian army because of pulmonary tuberculosis. them were recruited before a roentgen survey of the chest was done as a routine.

### American Review of Tuberculosis, New York 45:1-116 (Jan.) 1942

*Fluoroscopy in Diagnosis of Pulmonary Tuberculosis. L. H. Garland,

San Francisco .- p. 1.

*Roentgenoscopy of Lungs: Its Adequacy as Determined by Spot Roent-genography. R. H. Stiehm, Madison, Wis.—p. 15. Tuberculosis Control Program in Mexico. D. G. Alarcón, Mexico, D. F.,

Mexico.—p. 36.

Tuberculosis Control Among North American Indians. J. G. Townsend, Washington. D. C.; J. D. Aronson, Philadelphia; R. Saylor and Irma Parr .- p. 41.

Tuberculosis in the Negro. V. F. Cullen, Frederick, Md., and R. Hoff-

*Mortality from Tuberculosis Among Race Stocks in the Southwest.
L. I. Dublin, New York.—p. 61.
Solitary Foci of Tuberculosis: Their Development and Progress—Assmann Foci, Caseous Nodular Tuberculosis and Tuberculomas.
P. H. Pierson, San Francisco.—p. 75.

Fluoroscopy.-Garland states that even the published data of ardent protagonists of fluoroscopy show that the relative accuracy of the method in diagnosing tuberculosis is much lower than is indicated by the conclusions of these authors. Physical. psychologic and personal factors make fluoroscopy not sufficiently accurate for detecting active tuberculous lesions. The method is much more accurate than simple physical examination and is of definite value for detecting extensive or moderately advanced disease, especially when cavities are present. The percentage error of even expert fluoroscopy as compared to roentgenography varies from 13 to 35 per cent. Fluoroscopy in selected cases is essentially an adjunct to complete roentgen examination.

Roentgenoscopy of Lungs .- Stiehm presents cases which illustrate the advantages of roentgenoscopy: the proper position, the viewing of the lungs in several positions, which may disclose lesions at the periphery of the lung and those hidden by bones or other structures, and the advantage of magnifying a small lesion. The limitations of even the 14 by 17 inch stereoscopic film are revealed by roentgenoscopy. The tendency for relying on the posteroanterior roentgenogram, whether the miniature or the 14 by 17 inch, should be viewed with more caution and less enthusiasm. The miniature photograph is perhaps economically justifiable, but its limitations must be widely appreciated, especially if the small infiltrating lesion is to be found. Enlargement of the image, by magnification by roentgenoscopy and spot roentgenography, rather than its reduction appears more tenable. It is unfortunate that a tendency has developed to omit the tuberculin test, the earliest indication of tubercle formation, when mass roentgen surveys are made. Tuberculin tests should be repeated at yearly or more frequent intervals on all persons who react negatively to the test. With this routine the approximate time at which the infection occurred is known. The low cost of miniature films does not make the tuberculin test less valuable. It is not good medical practice to carry out mass roentgen ray surveys without knowing which persons are infected. The attempt to designate by a study of the roentgenogram which lesions typify significant pulmonary tuberculosis and/or arrested disease is hazardous and unfortunate and leads to errors of diagnosis. The minuteness of a tuberculous lesion does not indicate benignity. A study which includes history, physical examination and roentgenographic and laboratory data should not be considered complete unless the fasting patient's gastric contents are aspirated on three successive mornings and guinea pigs are inoculated. The presence of tubercle bacilli as determined by guinea pig inoculation indicates, with few exceptions, that the lesion seen in the roentgenogram is tuberculous and pathologically active.

Tuberculosis in the Southwest .- Dublin discusses the mortality in the racial groups (Negro, Mexican, Indian, Chinese, Japanese and Filipino) in the Southwest. In Louisiana the death rate from tuberculosis among Negroes for 1937 to 1939 was 102.5 per hundred thousand, in Texas 92.2 and in California 201.9, as compared to 38, 50.5 and less than 50, respectively, for the white population. The problem of tuberculosis among Mexicans is largely concentrated in Texas, New Mexico, Arizona and California. Data furnished by Texas authorities show that in 1937 to 1939 the death rate from tuberculosis in the Mexican population was 117.9. Data on the Spanish-American population in New Mexico are most unsatisfactory, for the certification of the cause of death is not efficient and in approximately 20 per cent of cases the cause of death is not stated or is ill defined. Werner found that deaths from tuberculosis among Mexicans in New Mexico accounted for more than two thirds of the total deaths in the state from this cause. In Arizona the death rate among Mexicans for 1937 to 1939, as reported by the state officials, was 145.8. In California the rate reported by the state officials was 199.9. The Indian population of Arizona, New Mexico and California is approximately 100,000, or 30 per cent of the total Indian population of the country. Arizona reports a death rate from tuberculosis among Indians of 280.5, New Mexico a rate of 200 and California a rate of 237.6. The death rate from tuberculosis among the Indians of Oklahoma, who make up about 30 per cent of the total Indian population of the country, for 1937 to 1939 was 154. The Japanese comprise nearly two thirds of the 200,000 persons of Oriental origin in California. The death rate from tuberculosis for the Japanese for 1937 to 1939 was 83.8, for the Chinese it was 179.8 and for the Filipinos it was 223.6 per hundred thousand. No permanent solution of the tuberculosis problem in the Southwest may be expected until the economic condition of the racial groups mentioned is improved and the diagnostic and curative facilities are expanded.

# Annals of Surgery, Philadelphia

115:1-160 (Jan.) 1942

Primary, Solitary Lymphoid Tumors of Gastrointestinal Tract. S. Warren and C. R. Lulenski, Boston.—p. 1.
Rupture of Colon by Compressed Air: Report of Three Cases. R. K. Brown, Buffalo, and J. H. Dwinelle, Auburn, N. Y.—p. 13.
*Congenital Malformations of Appendix—Fauulial Disease. T. M. Dowas,

Bryn Mawr, Pa.—p. 21. Obstructive Jaundice Due to Carcinoma of Pancreas: Choice of Operative Procedure. M. A. Sallick and J. H. Garlock, New York.—P. 25.
Heus Following Fractured Ribs. W. A. Altemeier, Cincinnati, and
G. H. Wadsworth, Detroit.—p. 32.
Effect of Sulfonamides on Prevention of Experimental Brain Abscess.

G. M. Markley, Philadelphia. p. 39.
*Relation of Hyperthyroidism to Hypertension, J. D. Bisgard, Omaha. -p. 42.

Metastatic Tumors in Breast. H. Charache, Brooklyn.-p. 47.
Neoplasms of Bony Thoracic Wall. G. N. J. Sommer Jr., Trenton,
N. J., and R. C. Major, Atlanta, Ga.-p. 51.

N. J., and R. C. Major, Atlanta, Ga.—p. 51.

*Autoplastic Transplantation of Splenic Tissue, in Man, Following Tranmatic Rupture of Spleen. R. A. Hamrick, Birmingham, Al2, and J. D. Bush, University, Ala.—p. 84.

*Unusual Case of Benign Multiple Chorionic Villi Implants in Peritoneal Cavity Accompanied by Hemoperitoneum, J. A. Lazarus and A. Schifrin, New York.—p. 93.

*Krukenherg's Tumors: Survey of Forty-Four Cases. J. M. Leffel Jr., J. C. Masson and M. B. Dockerty, Rochester, Minn.—p. 102.

Desmoid Tumors: Clinical and Pathologic Study. R. O. Pearman and C. W. Mayo, Rochester, Minn.—p. 114.

Technic of Tattooing with Mercury Sulfide for Pruritus Ani, R. Turell, New York, and A. W. M. Marino, Brooklyn.—p. 126.

Varicose Veins: Analysis of Results of Various Operative Procedures. S. W. Moore and G. M. Knapp, New York.—p. 131.

Problem of Catgut Sensitivity and Its Relation to Wound Healing: Preliminary Report. H. T. Langston, Chicago.—p. 141.

Role of Liver in Preoperative Care. J. H. Mulholland, New York.—p. 148.

-р. 148.

Advantages of Combining Local Infiltration Anesthesia with Controlled Fractional Spinal Anesthesia in Substandard Surgical Risks, J. Rheads and W. E. Lee, Philadelphia, p. 156.

Familial Malformation of Appendix .- Downs reviewed histories of a family of 22 persons, descendants of 1 man to the third generation, on 16 of whom appendectomy had been performed. The same deformity has been observed in the excised appendix of each person. The family studied consists of a father, his 6 children and 15 grandchildren. The father, 4 of his 6 children and 11 of the grandchildren have been operated on. The operations were performed in various hospitals. The record

of each mentions a band of fibrous tissue at the base of the appendix with adhesion of the organ to the outer surface of the cecum. Strikingly good results followed the removal of the mechanically crippled appendix. The peritoneal bands may be inherited. The earliest symptoms of indigestion, abdominal pain, tenderness at McBurney's point and colic are probably due to a deranged intestinal function, such as pylorospasm or spastic colon, without organic changes in the appendical wall. The malformation alone is not sufficient to precipitate an attack of acute appendicitis. It may act as a predisposing cause, but some other etiologic factor must be present.

Hyperthyroidism and Hypertension.—Bisgard studied the blood pressure of 48 of 99 patients one year or more after a subtotal thyroidectomy, 32 of whom at the time of operation had a resting systolic pressure between 145 and 170 and the other 16 a pressure of 170 or more. The pressure of 19 of the first group one year or more after the operation was reduced considerably; the systolic pressure of 11 of these 19 was normal. The diastolic pressure of 17 and the systolic pressure of 5 decreased, and in 10 the diastolic pressure increased. In 2 there was no change in pressure. In 8 of the second group, both the systolic and the diastolic pressure after thyroidectomy were reduced and remained so for one to five years. In 4 of these the pressure was nearly normal. In 4 of the 8 remaining patients the pressure was increased, in 2 it remained the same and in 2 the decrease was extreme. From these data two types of cases are distinguishable: (1) a type in which hyperthyroidism and established hypertension coexist as unrelated entities and (2) a type in which the relief of the hyperthyroidism by subtotal thyroidectomy causes the systolic and the diastolic pressure to become much lower, normal or nearly normal. The relation of hyperthyroidism to hypertension in the second type of case is probably provocative; the hyperthyroidism merely precipitates or exaggerates the latent hypertension. In both types arteriolar disease, differing only in degree, is present. In the first type the arteriolar disease is more advanced and renders the vascular bed inadequate for even a normal volume of blood flow, and in the second type the hypertension is pretensive and in time progresses to the condition of the first type.

Autoplastic Splenic Implants.-Hamrick and Bush report the development of nodular splenic implants throughout the peritoneal cavity in a Negro boy of 9 after traumatic rupture of the spleen. The boy had fallen out of a tree and had struck his abdomen on the ground. This is the thirteenth case of similar nature described in medical literature. It is the author's opinion that in man the relative youthfulness of the splenic tissue is of prime importance in making the splenic pulp cells viable for autoplastic implantation and successful peritoneal grafting. Autoplastic transplantation of splenic tissue may not be the exception in persons who have survived trauma to the spleen incurred in their youth.

Chorionic Villi Implants.-Lazarus and Schifrin cite the case of a woman of 25 who two years before admission had gone through an apparently normal pregnancy but had given birth to a dead fetus. Three months prior to her present illness she was free of abnormal symptoms, when vague abdominal pain ensued. Slightly less than four weeks before operation she was curetted for a supposed intrauterine pregnancy, having missed one menstruation. The abdominal pain became acute only twenty-four hours before operation. Operation revealed much blood and many clots in the peritoneal cavity. The tubes and ovaries, particularly the right, were studded with small nodules but presented no rent indicative of ectopic rupture. A section of omentum studied microscopically disclosed the tumors to be typical chorionic villi, different from chorioenithelioma. The benignity of the lesion was suggested by the fact that four Aschleim-Zondek tests gave negative results. Photomicrographs of the tumor disclose well differentiated villi which are not commonly present in chorioepithelioma but which characterize normal chorionic tissue. Furthermore, the cells were typical Langhans' syncytial cells. Also there was little evidence of invasion of the blood spaces by chorionic tissue, which is frequent in the malignant type of tumor. Study of the literature has failed to reveal a similar instance.

Krukenberg's Tumor. - From a review of the surgical, necropsy and clinical data on 44 patients with Krukenberg's tumor encountered at the Mayo Clinic from 1908 to 1938, Leffel and his colleagues conclude that the term should not be used. Since, however, this is likely to be employed, they suggest that all metastatic adenocarcinomas of the ovary be included under it. These tumors vary only in size and degree or malignant grade. Nearly all Krukenberg tumors will show some glandular structure if serial sections are made. The authors have always found mucus, evidenced by the presence of "signet ring" cells. The variation in glandular structure and mucus is largely dependent on the grade of the primary lesion. Metastasis may occur by spread through peritoneal lymphatic channels, by the retroperitoneal lymphatics, by infiltration of contiguous structures or by a process of peritoneal sedimentation. The predominant type of spread depends on the site of the primary lesion, the depth to which the wall of the primarily involved viscus has been invaded and the degree or grade of the primary lesion. Primary adeno-"colloid" carcinoma of the ovary rarely mimics Krukenberg's tumor. The stromal reaction seen in an ovary being invaded by carcinoma is comparatively typical. As for carcinoma elsewhere in the body, operation for a Krukenberg tumor perhaps offers more than does any other type of treatment. Although the surgeon is confronted with a hopeless situation, he must realize the value of palliation.

#### Archives of Dermatology and Syphilology, Chicago 45:1-258 (Jan.) 1942

*Hereditary Xanthomatosis: Familial Incidence of Xanthoma Tuberosum Associated with Hypercholesteremia and Cardiovascular Involvement, with Report of Several Cases of Sudden Death. D. Bloom, New York; S. R. Kautman and R. A. Stevens, Wilkes-Barre, Pa.—p. 1. Chromoblastomycosis in Cuba. V. Pardo-Castello, Havana, Cuba; E. R. Leon, Santa Clara, Cuba, and F. Trespalacios, Havana, Cuba.—p. 19. Lupus Erythematosus Hypertrophicus et Profundus. P. E. Bechet, New

York.—p. 33.

Necrobiosis Lipoidica and Granuloma Annulare: Comparative Study.

F. A. Ellis, Baltimore, and H. Kirby-Smith, Washington, D. C. p. 40.

Bacterial Flora of Normal Skin: Report on Effect on Various Oint-ments and Solutions, with Comments on Clinical Significance of This Study. D. M. Pillsbury, C. S. Livingood and Anna C. Nichols, Philadelphia .-- p. 61.

Differential Diagnosis of Parapsoriasis. L. McCarthy, Washington, D. C .- p, 81.

Histochemical Observations on Melanin Production in Skin. H. Sharlit, in collaboration with W. Sachs, C. F. Sims and Bella II. Salzer, New York.-p. 103.

Comparison of Frei Antigens. H. M. Robinson and H. M. Robinson

Jr., Baltimore.—p. 112.

*Estrogen Therapy of Tinca Capitis: Preliminary Report. D. O. Poth and S. R. Kaliski, San Antonio, Texas.—p. 121.

Dyskeratoid Dermatosis. S. B. Frank and C. R. Rein, New York.—

Hereditary Xanthomatosis.-Bloom and his co-workers discuss hereditary xanthomatosis as it occurred in 9 children of Syrian descent whose parents were second cousins. There had been 13 children; 4 are excluded from the survey, as 1 of them was still an infant and 3 had died at birth or shortly after. In 5 of the 9 remaining children xanthoma tuberosum developed before the age of 4. Of these 4 died more or less suddenly at the ages of 6½, 14, 18 and 23 years, respectively. The 1 surviving boy with xanthoma tuberosum has a cardiac defect and hypercholesteremia. Of the 4 living children without cutaneous xanthoma a girl aged 8 years has heart disease and hypercholesteremia, a boy of 41/2 has hypercholesteremia without any cutaneous or cardiac involvement and 2 children are apparently free of any abnormality. The parents of these tainted siblings had no cutaneous or cardiovascular symptoms, although the father had hypercholesteremia. The mother had 8 half siblings, and 5 of them also had hypercholesteremia. appears to support the theory that hypercholesteremia rather than xanthoma tuberosum is the principal directly inherited factor and that this disturbance of lipid metabolism under certain conditions leads to cutaneous and cardiovascular changes. The hereditary cause of the disorder has been demonstrated but no adequate statistical data are available that warrant a final analysis of the genetic mechnism involved. The taint distribution agrees with the theory of dominant inheritance, but it also can be explained by simple recessiveness. Genetic studies of affected families are essential for the development of successful therapeutic and preventive measures. A cholesterolfree and fat-free diet may be helpful in protecting carriers of the hypercholesteremic trait against the development of cutaneous and cardiovascular lesions.

Estrogen for Tinea Capitis .- Poth and Kaliski successfully treated 18 boys and 12 girls having tinea capitis with diethylstilbestrol and theelin. There was no significant difference in the healing time and tolerance for the two preparations. The mechanism of the action of the estrogens is not known. It may be due to the temporary production of adult cells. This might explain the tendency for the spontaneous cure of tinea capitis at puberty. If estrogen causes changes in the scalp which increase its local resistance, its effectiveness might be increased by the concerted use of fungicides.

# Archives of Ophthalmology, Chicago

27:1-230 (Jan.) 1942

Ocular Signs of Intracranial Saccular Aneurysms: Experimental Work on Collateral Circulation Through Ophthalmic Artery. F. B. Walsh

on Collateral Circulation Through Ophthalmic Artery. F. B. Walsh and A. B. King, Baltimore.—p. 1.

Corneal Penetration of Sulfanilamide and Some of Its Derivatives. H. Chinn and J. G. Bellows, Chicago.—p. 34.

Treatment of Retinoblastoma (Retinal Glioma) Surgically and by Irradiation. H. Martin and A. B. Reese, New York.—p. 40.

Studies of Retina in Bulk: Some Observations on Unstained Human Retina. A. Loewenstein, Glasgow, Scotland.—p. 73.

Epidemiology of Inclusion Conjunctivitis. P. Thygeson and W. Stone Jr., New York.—p. 91.

Choroidosis Centralis Serosa: Diagnosis, Pathologic Physiology and Therapy. W. F. Duggan, Utica, N. Y.—p. 123.

*Hereditary Glaucoma in Pedigree of Three Generations. T. D. Allen and W. G. Ackerman, Chicago.—p. 139.

Operative Treatment of Congenital Subluxation of Lens. A. Knapp, New York.—p. 158.

Etiology of Dacryocystitis and Epiphora. S. W. Garfin, Boston.—p. 167.

Etiology of Dacryocystitis and Epiphora. S. W. Garfin, Boston.-p. 167.

Hereditary Glaucoma.-Allen and Ackerman report 7 instances of hereditary glaucoma observed among 15 members of a family in which consanguine persons had not married and which was traced through three generations. The average age at which the glaucoma ensued was 11.6 years. The disorder was of the chronic simple type. Two of the 4 patients whose error of refraction could be determined had myopia; in 1 this was of more than 5 diopters in each eye, and in the other 1 the myopia varied from 1 to 5 diopters in the right eye. Miotics were insufficient; the best results were obtained with medical and surgical therapy. Early operation, goniotomy, before extensive visual damage occurs is important. Peripheral anterior synechias are unlikely unless considerable hemorrhage follows the operation. In the authors' cases goniotomy was effective without repetition in four eyes and apparently effective with one repetition in three eyes, and in one eye five goniotomies, two cyclodialyses and one deep root iridectomy were ineffective but iridencleisis was successful.

# Archives of Otolaryngology, Chicago

35:1-182 (Jan.) 1942

Diagnosis and Treatment of Cancer of Larynx, with Statistical Review of Phagnosis and Treatment of Cancer of Larynx, with Statistical Review of Fifteen Cases. A. E. Hammond, Detroit.—p. 1.

Carotid Artery Surgery. R. W. Kerwin, Chicago.—p. 30.

*Otitic Bacterial Meningitis. S. Weinstein, Brooklyn.—p. 53.

Sphenopalatine Ganglion Neuralgia. W. W. Eagle, Durham, N. C.

Malignant Melanoma of Nose, I. I. Kaplan, New York.—p. 85.
Relation of Tonsillectomy to Poliomyelitis. E. M. Seydell, Wichita, *Relation of

Kan.—p. 91.

Aerosinusitis. P. A. Campbell, Randolph Field, Texas.—p. 107.

Aerosinusitis. P. A. Campbell, Sinus Thrombosis and Suppuration

Purulent Otitis Media, Mastoiditis, Sinus Thrombosis and Suppuration

of Petrous Pyramid. S. J. Kopetzky, New York.—p. 115.

of Petrous Pyramid. S. J. Kopetzky, New York.—p. 215.

Otitic Bacterial Meningitis.—Weinstein discusses 39 cases of otitic bacterial meningitis with bacteria demonstrable in the spinal fluid encountered at the Jewish Hospital in the four years before the introduction of chemotherapy and in the four years afterward. The meningitis was usually associated with acute otitis, and generally the right side was involved. The otitis was acute in 34 and chronic in 5. The organisms most commonly isolated were streptococci and pneumococci. During the four years prior to 1937, 27 patients were encountered and not 1 recovered, but 4 of the 12 patients treated since 1937 have recovered. Modern chemotherapy for bacterial meningitis is one of the major achievements in its treatment, making the outlook for the future brighter.

Tonsillectomy and Poliomyelitis.-Seydell studied the relation of tonsillectomy to the development of poliomyelitis

(bulbar) as afforded by a survey of literature and various public health statistics. Definite conclusions cannot be drawn, as the data studied either support or oppose the theory that persons tonsillectomized during an epidemic of poliomyelitis are more prone to the disease or suggest that those whose tonsils have been removed are more susceptible to poliomyelitis irrespective of the time of the operation. The available statistics show that the bulbar form of the disease in 48 and the spinal form in 25 patients followed a recent tonsillectomy. The relationship of tonsillectomy to poliomyelitis cannot be determined without further study. Definite plans for the investigation of all epidemics of poliomyelitis should be formulated by trained epidemiologists, and an investigator should be appointed for each state. After an epidemic, statistics would thus become available through the various state boards of health.

Aerosinusitis .- Campbell states that in certain situations the paranasal sinuses are affected by changes in barometric pressure produced by changes in elevation and in weather. Normal paranasal sinuses surrounded by normal tissues are unaffected by these variations, but the presence of fluid in the sinuses or of redundant tissue in contact with the ostium of a sinus creates mechanical conditions which may lead to pathologic changes and symptoms. The term aerosinusitis is suggested for the condition.

### Michigan State Medical Society Journal, Muskegon 41:1-84 (Jan.) 1942

Choice of Anesthesia in Emergency Surgery. W. Bourne, Montreal, Canada.-p. 35.

Modification of Open Mask for Administration of Vinethene Anesthesia. C. Odén, Muskegon.—p. 39.
Coarctation of Aorta: Case with Right Axis Deviation of Electrocar-

diogram and Auricular Fibrillation, with Some Statistics. H. Stalker, Detroit .- p. 40.

The Physician in National Defense. R. A. Bier, Washington, D. C. ---р. 43.

Dangers in Breech Delivery. W. F. Seeley and R. S. Siddall, Detroit.

A Psychiatrist Looks at Education. L. A. Schwartz, Detroit.—p. 52. Chemotherapy in Acute Hematogenous Osteomyelitis: Case Report. B. J. Fieldhouse, Ida .- p. 56.

## New England Journal of Medicine, Boston 225:995-1034 (Dec. 25) 1941

Cardiovascular Examination of the Army Recruit. H. Jackson Jr., Boston.—p. 995.

Boston.—p. 995.

*W Physical Standards for Army Pilots. E. T. Spunt, Boston.—p. 999.

*Arterial Occlusion in Relation to Effort, with Special Reference to Retinal Arteries. H. B. Sprague and W. Westinghouse, Boston.—

p. 1002.

Tuberculin Tests in Children: Interpretation of Series of Varying Intradermal Test Doses and of Comparable Series of Patch Tests. C. A. Smith, W. H. Faulkner and J. M. Cordi, Boston.—p. 1008.

*Encephalitides of Virus Etiology. J. H. Dingle, Boston.—p. 1014.

Arterial Occlusion and Effort. - Sprague and Westinghouse determined the exact effort that 75 patients in presumably good health were undergoing at the time of their arterial occlusion; 29 patients (with thirty attacks) had ocular symptoms and 46 (with forty-seven occlusions) did not have symptoms referable to the eye. The retinal picture of arterial blocking is that of ischemia, often with the characteristic cherry red spot at the macula. Although embolism of the central artery of the retina is a popular diagnosis, such embolism is relatively rare; obliterating endarteritis with thrombosis is the common cause. Fifteen of the 29 patients with occlusion of the retinal artery or its branches had rheumatic heart disease. Loss of sight of the right eye in 10 and of the left in 4 was sudden. In 1 the right retinal artery was occluded first and then the left. Only 2 of the patients were undergoing unusual physical effort when overtaken by blindness, 6 were engaged in mild exercise and 7 were at complete rest. There were 9 instances of hypertension and arteriosclerosis. The right eye of 5 and the left eye of 4 were involved. Two patients were doing the presented back from a dight former application. housework, 1 stepped back from a slight furnace explosion, 1 was bending forward working on an automobile, 2 were dressing, I awoke with loss of vision, I was at the movies and I noticed loss of vision after turning his head quickly. Two of the remaining 5 patients had syphilis (both had a normal cardiac rhythm), and in 3 no cardiovascular disease was observed. One of the 2 patients with syphilis was ironing and 1 was walking about the house at the time of occlusion, 2 of the others were at rest and I was walking. Of the 46 patients in whom the occlusion was not in the vessels of the eye 22 had rheumatic heart disease, and in none of them did the embolism occur during violent effort. In 2 it happened some time after unusual effort ir 1 fifteen minutes after running for a trolley and in 1 after the patient had fixed a bed. In 9 others it occurred during mild effort (rising in the morning, driving a cai, eating breakfast, playing golf and working as a baker) and in 11 during complete rest. Arteriosclerosis and/or hypertension was present in 23 patients, and 1 patient had no demonstrable cardiovascular disease. None of these patients were engaged in severe or unusual effort in fact, 12 were at complete rest. It is seen that the sudden loss of sight or of the use of a limb or occlusion of cerebral or mesenteric vessels based on embolism or other arterial blockage occurred during ordinary daytime activities or when the patient was at rest in more than 9 of 10 patients. Unusual effort apparently is not the cause of arterial occlusion. Arterial blockage is as progressive when the patient is at rest as when he is active, perhaps more so

Encephalitides - Dingle states that the largest epidemic of encephalitis, affecting approximately 3,000 persons, of known origin occurred during the past summer and fall in an area encompassing the North Central states and Canadian provinces In the outbreaks of von Economo's disease of unknown origin since 1916 three distinct viruses have been demonstrated. This has helped to clarify the problem of encephalitis types of virus encephalitis, St Louis encephalitis and equine encephalomyelitis, other than poliomyelitis, have occurred in significant epidemics in this country For only poliomyelitis and Australian X disease is evidence of potential animal reservoirs lacking, and vector transmission is possible for at least five of the viruses causing encephalitis in man The acute encephalitides of virus origin that occur in epidemic form are so similar in their clinical aspects that differentiation on this basis is not possible except in poliomyelitis. The final etiologic diagnosis must be made with the aid of laboratory procedures Treatment of all the encephalitides is at present chiefly The sulfonamide derivatives, specific antiserum, convalescent human serum, antistreptococcus serum and streptococcus vaccines have been tried for therapy and/or prophylaxis. In this country there are three methods of preventing epidemics of encephalitis extermination of host reservoirs, extermination of vectors and immunization of susceptible hosts The use of purified immune vaccine seems desirable for laboratory workers and for persons in areas where equine encephalomyehtis is endemic whose occupation offers frequent opportunity for infection with the virus. Vaccines that can be used safely m mm are not yet available. Turther investigation of the problems of prevention is essential, especially because of the military activities and concentration of men in training camps in areas where the disease is endemic

#### North Carolina Medical Journal, Winston-Salem 2.635 690 (Dec.) 1941

How Can I Prepare My Child for the Future? J A Shaw, Fayette ville -- p 635

Acute Glomerulonephritis with Special Reference to Treatment W R

Stanford Durham—p 637
*Care of Patients with Incurable Cancer of Cervix J P Rousseau Winston Salem—p (44

Management of Congestive Heart Failure W T Runey, Fayetteville -p 645

True Hyperinsulinism Due to Diffuse Hyperplasia of Islet Tissue Rejort of Case Cured by Subtotal Panereatectomy A deT Valk and F A MacMillan Winston Salem—p 648

Chemotherapy in Obstetrics and Gynecology C N Burton, Asheville -p 652

Asjuration of Injudol Injected for Diagnosis and Iocalization of Rup-tured Intervertel ral Disks B Woodhall Durham—p (55 Is Diverticulties of Colon a Surgical Disease, W. R. Johnson, Ashe

Rheumitic Fever F M Carr Asheville -p 661 I valuation of Routine Procto (gmoidoscop) in Gastrointestinal Study Report on 179 Examinations A \ Rossien, Lew Gardens, A \ -

Care of Patients with Incurable Cancer of Cervix ---Rousseau recommends the following twelve measures for relieving the pain of incurable cervical cancer. 1 The incurability

and hopelessness of the disease should be appraised correctly Ureteral obstruction, anuria and uremia should be prevented 3 Prometra should be prevented by gentle dilation of the cerand lavage of the uterme cavity 4. If a parametric abscess exists, colpotomy is indicated 5 The urinary symptoms incident to involvement of the wall of the bladder and associated cystitis should be relieved 6 High voltage roentgen therapy is necessary for painful osseous metastasis 7. When sedation becomes necessary acetylsalicylic acid, then codeine, cobra venom and finally morphine should be used 8 Alcohol should be injected into the spinal subarachnoid space if sedation fails to give relief 9 Treatment with a liquid diet and tincture of opium should be tried for proctitis, diarrhea and rectal tenesmus 10 For the relief of the toxenna of severe infections, chills and fever the sulfonamides, blood transfusion, intravenous injections of fluid and frequent hot boric acid douches are helpful. 11 A vaginal tamponade with gauze soaked in liquid petrolatum will control severe hemorrages 12 For the ileus of the late stages of the disease a low residue diet, liquid petrolatum and enemas are indicated

#### Northwest Medicine, Seattle

41:1-38 (Jan ) 1942

Nature of Allergy Its Pathology and Mechanism
duction M B Cohen, Cleveland—p 5
Clinical Physiology of Shock K E Hynes, Seattle—p 7
Organic Occlusive Peripheral Vascular Diseases Diagnosis and Treat
ment R J Popkin McChord Field, Wash—p 10
Pulmonary Emboli Report of Futal Medical Case J M Bowers,

Medical Aspects of Industrial Poisons H M F Behneman, San Francisco -p 20 Compound Fractures Ho C Blur Portland, Ore -p 23

Compound Fractures T C But Pottung, Ote-4, 25
Differential Diagnosis Between Hyperthyroidism and Neurosis T
Lemere and B T King, Seattle—p 26
Pseudomucinous Cystadenoma with Walignant Changes R S Mitchell,

Wenatchee Wash-p 27

#### Pennsylvania Medical Journal, Harrisburg 45:321-416 (Jan) 1942

Changing Conceptions of Portal Circhosis A M Snell, Rochester, Minn -p 337

Early Recognition of Deafness Pennsylvania Plan for the Hard of Hearing School Child L T Buckman, Wilkes Barre—p 345
Report of Experiment in Control of Cancer of Uterus Catharine Mac
farlane Margaret C Sturgis and Fath S Fetterman, Philadelphia Pennsylvania Plan for the Hard of

-n 348 Sedatives-Their Use and Abuse E B Edie, Uniontown -Trentment of Acute Otitis Media in Children W Hershberger, 7 Martinsburg -p 355

*Acute Appendicitis in Children J W Deaver Philadelphia -- p 358
*Male Hormone Therapy C W Dunn, Philadelphia -- p 362 *Male Hormone Therapy

Acute Appendicitis in Children - Deaver presents a study of 417 consecutive cases of acute (perforated, nonperforated and perforated with abscess or with peritonitis) appendicitis in children up to 14 years of age who were admitted between 1930 and August 1941 to the Children's Hospital of the Mary J Drevel Home Analysis of the data reveals that there was a steady decrease in mortality (11 of the 119 children with a perforated appendix died) during the period of the study were no deaths among the 298 children whose appendix was not perforated. The decreased mortality is attributed to proper preoperative care, increased use of the McBurney incision and intelligent postoperative care, which stressed proper fluid electrolyte administration and duodenal suction. Sulfamlamide has been used for the last two years, 1 to 2 Gm was placed in the peritoneal cavity and 1 to 2 Gm in the wound The dose depended on the amount of contamination, the size of the inci-sion and the size and age of the child. When dramage was employed, sulfamilamide was administered by hypodermocylsis for the first three days. The drug has not been harmful. Its intraperitoneal use may be beneficial for early peritonitis Its use in the wound has cut down minor complications of the wound when draininge was not used and permitted incisions to be closed more tightly when drains were used

Androgen Therapy.-Dunn reviews the use of androgen therapy for the young hypogonadal male, the climacteric male The most effective and practical and the impotent male method of administering testosterone for genital hypoplasia is by implantation in the adult male and by oral or hypodernic administration for the puberal or the adolescent male. Patients given an adequate amount of testosterone exhibit definite primary and secondary sex characteristics and favorable constitutional effects Testosterone stimulates and sometimes accelerates growth The least tavorable results are obtained when impotence develops after diabetes or testicular atrophy. It is possible to induce testicular development when 200 to 300 mg of testosterone is implanted at intervals of four to six months The administration of testosterone to patients with diabetes resulted in a diminished requirement of insulin

# Physiological Reviews, Baltimore 22:1-124 (Jan) 1942

Insensible Loss of Water L H \text{ \text{ewburgh and Wargaret Woodwell Johnston, Ann Arbor, Mich -p 1}}

Hemoglobinuria C L Yule, Rochester \ \( \frac{1}{2} \) -p 19

Fuel for Muscular Exercise C L Gennull Biltimore -p 32

Recent Advances in Knowledge of Liver C D Snyder, Baltimore

-p 54 Present Status of Shock Problem C J Wiggers, Cleveland -p 74

# Psychiatric Quarterly, Utica, N. Y.

16:1-218 (Jan) 1942

Rosschach Method and Its Uses in Military Psychiatry J & Brussel and K S Hitch, Fort Dix & J-p 3

Comparative Table of Main Rosschach Symbols Z A Piotrowski New

York -p 30

Cutatonic Death Reaction Report of Case P Milici Kings Park,

Some Shakespearean Characters in Light of Present Day Psychologies

Some Shrkespearean Characters in Light of Treatment of S Wile New York—p 62

*Mehemer's Disease Its Incidence and Recognition W H English, Rochester, N Y—p 91

Problems of Cancer Therapy in State Hospital I Moore, Queens Village, N Y—p 107

Validity of Shipley Hutfold Retreat Test for 'Deterioration'

augunt of Simples Arthurs 2 19 19 B Pollack, Rochester A A -p 119 trenile Amaurotic Idiocs G A Jerus L Roizin and W H English, trenile Amaurotic Idiocs

Juvenile Amurotic Idiocs

Rochester, N Y -p 132

Ramily Care Placement of State Hospital Patients as Method of Situa

ramily Care Placement of State Hospital Patients as Method of Situa

tional Therapy Katharina Stuber and Henrietta B De Witt, Sikes tional Therapy K ville, Md -p 144

Echo of Reading Impersonal Projection in Schizophrenia Marjorie C

Echo of Reading Impersonal Projection in Schizophrenia Marjorie C

Meehan, Newtown, Conin—p 126

Ambulatory Insulin Therapy Report of Fifty Two Cases P J

Tomlinson and Lucy D Ozarun Helmuth N 1—p 167

Varicella with Encephalitis S C Karlan, Dannemora N Y—p 174

Incidence of Psychoses and Other Mental Abnormalities in Families of Recovered and Deteriorated Schizophrenic Patients O Kant Wor Recovered and Deteriorated Schizophrenic Patients cester, Mass-p 176

Alzheimer's Disease - English presents evidence that supports his belief that Alzheimer's disease is more prevalent than is generally believed The necropsy statistics at the Rochester State Hospital show about a 15 per cent incidence 1935, 7 typical cases have come to necropsy In another case a clinical diagnosis was made but permission for necropsy was not obtained At the Rochester State Hospital at present there are 4 patients with the diagnosis of Alzheimer's disease. Inquiry into its incidence in other New York state hospitals for 1935 to 1939 inclusive revealed that Alzheimer's disease was diagnosed in 29 patients on their first admission to a state hospital Of the 29 patients, 19 have died, necropsy of 11 was permitted in 7 of whom the diagnosis has been confirmed. It appears that in roughly one third of the cases the diagnosis is erroneous, but when it is considered that in a certain number of cases the disease is not diagnosed the erroneous diagnoses tend to be compensated for

# Quarterly J. Studies on Alcohol, New Haven, Conn 2:453-640 (Dec ) 1941

Acquired Tolerance to Ethyl Alcohol H W Newman, San Francisco

P 453
Some Cultural Factors in Etiology of Alcoholism J P Shalloo, Phila

delphia -p 464
Effect of Alcohol on Mental Activity D Wechsler, New York -p 479

Effect of Alcohol on Mental Activity D Wechsler, New York -p 479
Marchafava's Disease G Lolls, New Haven Conn -p 486
Alcoholism and Use of Drugs Review of \$41 Cases Diagnosed 'With Psychosis Due to Drugs and Other Evogenous Toxins or "Without Psychosis, Drug Addiction W Woore Alice F Raymond and Psychosis, Drug Addiction W Woore Alice F Raymond and Midred G Gray, Boston -p 496
Conditioned Reflex Therapy of Chronic Alcoholism IV Preliminary Report on Value of Reinforcement W I Voegtlin F Lemere, W R Broz and P O Hollaren Seattle -p 505
W R Broz and P O Hollaren Seattle -p 505
Critical Survey of Various Chemical Methods for Determining Alcohol Content of Body Fluids and Tissues with Their Physiologic and Vedicologial Significance W. W Jetter, Boston -p 512
Vedicologial Significance W. W Jetter, Boston -p 512
Vitamin Deficiencies and Liver Circholis in Micholism Part VII Vitamin Deficiencies and Liver Circholis in Micholism Part VII Vitamin Conn -p 544

## Radiology, Syracuse, N. Y. 38:1-130 (Jan) 1942

Patent Interauricular Septum Associated with Mitral Stenosis Lutembacher's Syndrome G J Baylin, Durham, N C-p 1
Chinical and Roentgen Manifestations of C reinoma of Duodenum M Ritvo and F L Hewes, Boston-p 7
Phytobezorr and Its Formation in Vitro I K Chont, Oklahoma City

-p 14

Patellar Anomalies, Roentgenologic and Clinical Consideration H C
Jones and D W Hedrick, Detroit—p 30
Abdominal Pregnance D Mattingly and L J Menville, New Orleans

—p 35
Star Shaped Radiolucencies of Gallstones Rare Roentgen Sign Marie Ortmayer and Marie Connelly, Chicago —p 39
Relation of Density of Cholecystographic Shadows of Gallbladder to Iodine Content H Joffe and T J Wachowski, Chicago —p 43
Roentgen Diagnosis of Space Occupying Lesions in Region of Head of Pancreas R A Rendich M H Poppel and A M Cove, Brooklyn —p 47
Recovery Limitation of Irradiated Tissues Theoretical and Experimental

Recovery Function of Irradiated Tissues Theoretical and Experimental

Recovery Function of Irradiated Tissues Theoretical and Experimental Study A Mutscheller New York—p 53

Comparative Isodose Charts for 200 ky 400 ky and 1 000 ky \( \lambda \text{ Rays} \) M C Reinhard and H I Goltz, Buffalo—p 74

Stepless Voltage Controls for \( \text{ Ray Generators} \) A H Warner and R H Neil Los Angeles—p 77

Two Instruments for Measuring \( \text{ Ray Tube Voltage} \) M M D

Williams, Rochester Minn—p 80

Tube Ratings and Exposure M M Schwarzschild, New York—p \$4

# Texas State Journal of Medicine, Fort Worth 37:575 638 (Jan ) 1942

Use of Radioactive Elements in Biology and Medicine W J Kerr,

San Francisco -- 582
*Early Degenerative Lesions of Pancreus S A Wallace and C T

Early Degenerative Lesions of Pancrets S. A. Wante and S. Ashworth Dall is —p. 584
Metastatic Tumors Involving Central Vervous System: H. Hartman and L. M. Helfer, San Antonio —p. 587
Acute Cervical Adentis in Children: A. Seeds, Dallas —p. 593
Treatment of Wounds: T. H. Thomason: Fort Worth —p. 597
Disabling Injuries of Shoulder (Exclusive of Fracture and Dislocation).

L. P. Good, Tevarlans —p. 600

L P Good Texarkana—p 600

*Postpartum Psychoses G W Day Fort Worth—p 605
Use of Middle Meatus in Antrum Laying J C Dickson, Houston

-р 608

Radical Mastoidectoms Indications Technic and Postoperative Manage ment J D Singleton Dallas -p 612 Specific Problems of Morbidity and Morbility in Texas Children J M

Coleman Austin -p 615

Early Degenerative Lesions of Pancreas - Wallace and Ashworth state that a careful review of sections of the pancreas from 200 recent necropsies revealed many unsuspected lesions Adipose tissue invasion, fibrosis arteriosclerosis and arteriolar sclerosis were observed to increase in frequency with advancing age. The evidence suggests that arterioselerotic atrophy is probably the most frequent cause of the first two unsuspected lesions Dilatation of acini and ducts is frequently present but has no definite relation to age

Postpartum Psychoses -Day does not believe that the psychosis that develops during or soon after pregnancy is different from the psychosis that would develop in the person affected under any other circumstances The psychosis developing during the pregnancy-puerperium period should receive the prompt and scientific diagnosis and treatment that the same psychosis would receive at other times Every community ought to have a psychiatrist within consultation distance and every general hospital a psychiatric department equipped for the scientific treatment of acute psychosis

# Western J. Surg., Obst. & Gynecology, Portland, Ore. 50:1-68 (Jan) 1942

Problem of Human Infertility. C F Flubmann, San Francisco – 1 1 Sterrlity as Affected by Endocrine Disturbances W W Wilson, Port Sterility as Affected by Endocrine Disturbances land, Ore -p 6

Mechanical Factors Producing Sterility P A Resnells Ios Angeles

Cancer of Body of Uterus R L Wakins and D R Neil in Peril land Ore—p 17

Practical Significance of Cancer Research J A Finge San Francisco

Recent Advances in Pathology of Ovarian Tumins Margaret Sch life
San Francisco—p 37
Dyspreuma P A Gliebe, San I rancisco—p 43
Hemangioma of Kidney E H Mclean and T J Mathews, Oc.
City Ore—p 47

#### FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

# British Heart Journal, London

3:205-268 (Oct.) 1941

Coarctation of Aorta: Collateral Circulation. C. Bramwell and A. M.

Jones.—p. 205.

*Changes in Renal Function and Persistence of Murmur After Ligature

of Patent Ductus Arteriosus. G. Bourne,—p. 228.

Inversion of T Waves in Lead 2 Caused by Variation in Position of Heart. P. D. White, F. L. Chamberlain and A. Graybiel,—p. 233. Pulmonary Venous Return via Superior Vena Cava. J. E. O. Gillespie.

—р. 241. Lead (CR1) Electrocardiograms in Auricular Fibrillation. W. Evans .- p. 247.

Ligation of Ductus Arteriosus .- Bourne reports a case of patent ductus arteriosus in which ligation of the duct caused a definite increase in the diastolic pressure (associated with a decided impairment of renal function) and failed to cause the classic murmur to disappear. These two points should be further investigated, and the efficiency of the renal function of patients with the condition should be determined before and after operation.

# British Journal of Ophthalmology, London

26:1-44 (Jan.) 1942

Syphilis in Ophthalmology. E. W. Assinder.-p. 1. Chorioretinitis Juxtapapillaris (E. Jensen). R. G. Posthumus.-p. 23.

#### British Journal of Tuberculosis, London 35:125-162 (Tuly-Oct.) 1941

Prevention of Tuberculosis in War Time. F. Heaf .- p. 127. Some Thoughts on Problems and Paradoxes of Primary Tuberculosis. G. A. M. Hall .- p. 133.

Thrombosis of Superior Vena Cava and Pulmonary Veins. W. P. Cleland .- p. 141.

Observations on Complement Fixation Test in Tuberculosis. F. Klopstock .-- p. 146.

### British Medical Journal, London

2:837-864 (Dec. 13) 1941

Observations on Some Normal and Injurious Effects of Cold on Skin and Underlying Tissues: II. Chilblains and Allied Conditions. T. Lewis,-p. 837

*Some Effects of Vitamins B and C on Senile Patients. W. Stephenson,

C. Penton and V. Korenchevsky.-p. 839. *Value of Blood Transfusion in Malignant Diphtheria. I. Pugh and O. S. Williams .- p. 844.

Sacroiliae Strain. J. Cyriax .- p. 847.

Congenital Arteriovenous Anastomosis. A. G. Watkins .- p. 849.

Effect of Vitamins B and C on Senile Patients,-Stephenson and his colleagues studied the effect of vitamins B and C on 15 old men and 25 old women. The study was carried on for a year and was controlled by giving 18 similar subjects dummy pellets of lactic sugar. The observation time was divided into five periods of eight or nine weeks, during which examinations and tests were performed repeatedly. The treatment periods were alternated with rest periods of ten to fourteen days. The post-treatment period lasted four to five months. The ages of the treated and control patients varied from 60 to 87. All the patients had some degree of senile dementia accompanied by the usual features of senility and/or those of aging. All were given a usual hospital diet not rich in vitamins. Treatment with the vitamins did not stop the biologically inevitable development of senility and did not affect the basic features of senility already present. However, the treatment prevented or improved, in some cases to a striking degree, certain senile features which could be considered pathologic, which appeared prematurely or in an extreme degree (e. g. muscular, cardiovascular and mental deterioration) or which do not seem to be inevitable in normal physiologic senility (e. g. dementia, insomnia, cutaneous rashes, itching and constipation). During the study improvement or disappearance (apparently not lasting) of some pathologic senile features was often observed, while a number of persons were not improved and in a few certain senile features developed during treatment. The results emphasize that the greatest care should be taken to prevent partial or latent vitamin deficiency, which not only may prevent certain vitamin deficiency diseases but may lengthen the approach to pathologic senility. About four

months after the treatment was terminated considerable deterioration occurred; the improvement obtained during treatment disappeared and some new instances of deterioration appeared. In spite of the relapse in some persons, in others the improvement was maintained after therapy had been withdrawn.

Blood Transfusion for Malignant Diphtheria.-Pugh and Williams gave 20 consecutive patients with malignant diphtheria transfusions of 500 cc. of stored citrated blood. There were 2 deaths among the 20 given blood transfusion and 7 deaths among 20 similar control patients. Of the 2 patients who died in the test series, I was moribund on admission and died a few hours after transfusion and the other died during the sixth week from cardiac failure. In the control series 5 patients died of profound toxemia during the first week of illness and 2 from cardiac failure during the second week. Immediately after the transfusion of blood the apathetic and drowsy patient had a bright and keen appearance, and the nasal discharge, the periadenitis and the membrane cleared rapidly. Fourteen of the 18 patients in the test series had thirty-three complications, as compared to forty-four complications for the 13 control patients. Severe complications (cardiac irregularities, pharyngeal paralysis and peripheral neuritis) were more prominent among the latter. The average hospitalization time for the treated was ten weeks as against thirteen weeks for the control patients. The results appear to warrant further investigation.

#### Edinburgh Medical Journal

48:793-872 (Dec.) 1941

Surgical Organization in Air Raids. C. F. W. Illingworth.—p. 793. Injuries from Projectiles. S. Smith.—p. 799. Wound Infection and Accidental Wounds: Antiseptic Eras—Yesterday

and Today. J. Fraser .- p. 818.

Gaucher's Disease: Report of Two Unrelated Cases. E. Emanuel .--р. 843.

# Journal of Laryngology and Otology, London

56:337-376 (Oct.) 1941

Pentothal Sodium Anesthesia in Peroral Endoscopy. G. Young and

rentotial Sodium Anestuesia in Peroral Endoscopy. G. Young and H. H. Pinkerton,...-p. 337.

Temporal Lobe Abscess: Two Cases with Recovery; Note on Two Stage "Kalin" Operation. N. Asherson...-p. 347.

Bleeding from External Auditory Meatus Following Fracture of Mandible. S. Suggit...-p. 364.

Fibroadenolipoma of Tonsil. L. C. Thomson...-p. 368.

# Journal of Mental Science, London

88:1-274 (Jan.) 1942

*Hyperthyrotic Catatonia: Schizophrenic Symptom Complex. R. E.

Hemphill .-- p. 1.

Prognostic Factors of Adolescent Psychoses. A. B. Carter.—p. 31.

Observations in Hypoglycemia: III. Cerebrospinal Fluid Sugar and Coma. W. Mayer-Gross and F. Berliner.—p. 82.

Treatment of Tuberculosis in Uncooperative Patients. A. Kennedy .-

Electroencephalography in Cases of Mental Disorder. W. G. Walter. -p. 110,

Further Observations on Sodium Amytal Experiments. F. Reitmann.

—p. 122.

Blood Amines. D. Richter and Margaret Lec.—p. 127.

Three Ganser States and Hamlet. E. S. Stern and W. H. Whiles. -р. 134.

Hyperthyrotic Catatonia.—Hemphill tried to determine the incidence of hyperthyroidism and its distribution among 2,096 male and 2,654 female patients with recognizable types of mental illness. There were 5 men and 54 women with goiter. Apart from toxic delirium, mania, depression and paranoid paraphrenia, hyperthyroidism was not a significant factor in the production of mental disease. There was no typical postoperative reaction. Simple or nontoxic goiter did not occur in any case of early schizophrenia. Hyperthyroidism in schizophrenia was infrequent and was associated with only a particular form of reaction: hyperthyroid catatonia. The clinical features of this disorder consist of varying schizophrenic symptoms with auditory hallucinations, an acute episode with visual hallucinations, distortion of the body image, inability to differentiate parts of the body and other evidences of instability of the boundaries of the ego. This phase is succeeded by catatonic stupor. In cases of severe hyperthyrotic catatonia the end result is dementia. Systematic determination of the anterior pituitary hormones may provide the key to the schizophrenic illnesses.

#### Lancet, London

2:719-750 (Dec. 13) 1941

Group of Head Injuries. J. E. A. O'Connell.—p. 719.
Clotting and Filtration of Citrated Plasma. M. Maizels.—p. 722.
Flexed Plaster Spica for Fractured Femoral Neck. W. A. Cochranc.
—p. 726.
Acute Bacterial Endocarditis: Two Unusual Cases. E. A. Cockayne and T. N. P. Wilton.—p. 728.

#### Medical Journal of Australia, Sydney 2:583-606 (Nov. 22) 1941

Studies in Tuberculosis. R. Webster .- p. 583. Active Immunization in Experimental Pertussis. E. A. North, G. Anderson and J. J. Graydon.—p. 589.

Failure of Treatment with Placenta, with Vitamin C and with "Prontosil" in Chronic Myeloid Leukemia. J. B. Thiersch.—p. 594.

#### 2:607-634 (Nov. 29) 1941

Biologic Approach to Infectious Disease. F. M. Burnet.—p. 607.
Dosage Interval in Sulfapyridine Administration. R. Andrew.—p. 612.
Instincts and the Herd. A. A. Abbie.—p. 615.
Permanent Implantation of Gold Radon Seeds: Technic and Indications for Use of Method. H. J. Ham and L. S. Loewenthal .- p. 620,

#### Schweizerische medizinische Wochenschrift, Basel 71:1233-1356 (Oct. 25) 1941. Partial Index

Labhardt's Method of Management of Uterine Stump After Supravaginal Amputation. F. Amacker .- p. 1234.

Anderes.—p. 1207.
Treatment of Eclampsia According to Stroganoff, E. Anderes.—p. Hypophysis and Lactation. W. Berblinger.—p. 1237.
Radiotherapy of Cervical Cancer. M. Brouha.—p. 1240.
Acute Attack of Glaucoma and Weather. A. Brückner.—p. 1242.

Peroneal Paralysis as Unusual Indication for Cesarean Section. C. Brunner .-

C. Brunner.—p. 1243.
Infiltration of Pelvic Sympathetic in Treatment of Certain Hypogastric Plexalgias, Particularly of Vulvar Pruritus. G. Cotte.—p. 1248. Cure of Degenerative Lesions of Uterus of Rats with E Avitaminosis by

Means of Tocopherol Acetate, V. Demole.—p. 1251.
Permeability of Placenta. R. Doerr.—p. 1253.
*Determination of Prothrombin Time with Human Milk. E. Freuden-

berg.—p. 1256. Etiology of Hypovitaminoses in Pregnancy. H. Guggisberg.-Endometrioses and Endometriomas of Rectosigmoid. C. Henschen .p. 1271.

Labor in Overweight Women. T. Koller and C. M. Zoller.-p. 1296. Diabetes and Pregnancy. R. Staehelin.-p. 1324.

Hypophysis and Lactation.-According to Berblinger the relation between prolactin, the lactogenic hormone of the anterior lobe of the hypophysis, and the other hormones of the anterior lobe of the hypophysis has not been clarified. It is possible that this relation is quantitative and that it depends on changes in the numerical ratio of the epithelial cells of the anterior pituitary. It has been established that the acidophilic epithelial cells produce the growth hormone and the basophilic cells the gonadotropic hormones. According to Bates and Schooley the acidophilic epithelial cells are also the source of prolactin, at least in animals. The author thinks that the main cells of the adenohypophysis and the pregnancy cells originating from them must have a special function and suggests that it is possible that the pregnancy cells are the source of prolactin. He is of the opinion that information about the site of prolactin formation can be obtained only in cases in which lactation has developed in the absence of pregnancy and birth and in the presence of certain hypophysial changes. Such cases are rare. The author cites the history of a woman aged 47 in whom lactation began in the absence of pregnancy, abortion or childbirth but in the presence of a hypophysial adenoma which consisted mainly of epithelial cells corresponding to pregnancy cells. The author likewise cites the occurrence of mammary secretion in female and male patients with acromegaly and of lactation in the presence of bilateral ovarian tumors and directs attention to hypophysial changes in some patients with malignant growths. A woman had been operated on for sarcoma and for extensive sarcomatous metastasis. It is suggested that the adenoma formation in the anterior pituitary had some connection with the tumor formation. If prolactin formation takes place in the hypertrophic main cells and in the pregnancy cells, the abnormal lactation can be explained, as well as the time of its onset (shortly before menstruation, when the corpus luteum was in regression; at this time the excess of prolactin can exert its effect). In rats with experimentally produced hypophysial tumors the mammary glands are found in the secretory phase when the tumors contain foci which resemble pregnancy cells. It is highly probable that the pregnancy cells are the site of production of prolactin.

Radiotherapy of Cervical Cancer.-Brouha points out that radium and roentgen therapy have largely replaced the radical surgical treatment of cervical cancer. He reports results obtained by irradiation in the cancer hospital of Liege. The treatment is decided on after a consultation between the radiologist and the clinician. Generally the patient with a cervical neoplasm is treated first by radium and later by transcutaneous. high voltage roentgen irradiation. Of 602 patients treated between 1925 and 1935, 171, or 28.25 per cent, survived more than five years. Of those in whom the lesion was in the first stage 51.3 per cent survived; of those with a lesion in the second stage 34.7 per cent and of those with a lesion in the third stage 14 per cent. This difference in the mortality according to the severity of the lesion is especially pronounced during the first year after the treatment. During the subsequent years the mortality is practically the same for all patients. When the patient has survived beyond the first year without a relapse, the prognosis is no longer influenced by the grade of the initial lesion. The five year survival rate of 28.25 per cent for the total number of cases may be classed with the better statistics. Unfortunately it seems stabilized, as is also the less satisfactory survival rate of 51.3 per cent for patients in whom the lesion was of the first grade. Radiotherapy is the treatment of choice for cancer which has extended beyond the cervix. In certain cases, particularly in those in which surgical intervention is no longer possible, the effects of irradiation sometimes border on the miraculous. Extensive lesions become cicatrized, pain ceases and the general condition improves. A small number of patients are cured, while others are able to lead an almost normal life for variable periods. Further progress must be hoped for from increasingly earlier diagnoses and from a sane rivalry between irradiation and surgical intervention. The former must become more penetrating and more selective; the risks of the latter must be reduced.

Determination of Prothrombin Time with Human Milk. Freudenberg describes a method which had been outlined by Hauser in 1940. It follows the micromethod developed by Fiechter and by Kato on the basis of Quick's technic. Its only originality is in the fact that human milk is used instead of brain extracts as a source of thrombokinase. Since the measurement of the prothrombin, according to Quick's technic, presupposes constancy of the calcium content, the human milk must be decalcified. This is accomplished by the addition of sodium fluoride. The peroxidase of human milk, being destructive of thrombokinase, must also be removed. This is done by adding pyrrole, the peroxidase toxin. To 20 cc. of freshly obtained breast milk are added 14.7 mg. of sodium fluoride and 0.3 cc. of pyrrole. The milk is stored in the ice box but should not of pyrrole. The milk is stored in the ice box but snown to be frozen. The prothrombin time is determined according to the aforementioned micromethods with 0.1 cc. of oxalated blood, 0.1 cc. of human milk (prepared as stated) and 0.1 cc. of calcium chloride solution. The advantage of the use of milk over the use of brain extracts becomes evident when it is considered that the difficulty of keeping brain extract available has been one of the chief obstacles to the regular employment of the valuable determination of the prothrombin time.

#### 71:1357-1408 (Nov. 1) 1941. Partial Index

Experiments on Cutaneous Allergy Against Simple Chemical Substances.

K. Landsteiner.—p. 1359.

Question Whether Dissemination of Allergic Sensitization Is Refer

Process. G. Miescher.—p. 1360.

Analogous Factors in Etiology and Pathogenesis of Asthma and Rhemmatism. W. Berger.—p. 1362.

*Practical and Theoretical Interest of Associated Immunications.

G. Ramon .- p. 1366.

*Associated Vaccination Against Smallpox and Diphtheria. T. Ref.p. 1368.

P. 1368.

Culture of Ultravirus. P. Hauduroy.—p. 1369.

Immunizing Efficacy of Water Soluble Tuberde Bacilli Autolysates,
Especially Grasset Endotoxin. C. Hallauer.—p. 1370.

*Postscarlatinal Immunity. E. Freudenherg.—p. 1371.
Pigeons and Barnyard Fowls as Possible Sources of Human P-inter-it
or Ornithosis. K. F. Meyer.—p. 1377.

Combined Immunization.-According to Ramon the method of combined vaccinations has been practiced for fifteen years, It consists in the simultaneous development of two or several immunities by means of a mixture of different vaccines. This method rests on the principle of "substances that aid and stimulate immunity." According to it vegetable or mineral substances, such as tapioca, tannin, calcium chloride, alum ar l

Number 15

aluminum hydroxide, when added to an antigen, are capable of increasing the specific immunity which that antigen can induce. When these substances were first introduced it appeared hardly possible to use some of them in human subjects, although they had produced good results in animals. It was for this reason that the antityphoparatyphoid vaccine was tried; this vaccine was to assume the role of tapioca. Thus the combined vaccines were realized. The practical application of combined vaccination has furnished numerous and irrefutable proofs that multivalent immunization can be effected by a mixture of several

Combined Vaccination Against Smallpox and Diphtheria.-Combined administration of antivariola and antidiphtheria vaccines, according to Reh, has been made obligatory in Italy. The method has incontestable advantages over the individual administration of the two vaccines. Only two vaccinations are necessary for immunization against both smallpox and diphtheria. This constitutes a considerable simplification. The technic employed is as follows: at the first session vaccinal lymph is introduced into the arm (in boys) or leg (in girls), and this is followed by the injection of 1 cc. of diphtheria toxoid into the opposite suprascapular region. Three weeks later the antivariola vaccination is controlled and at the same time a second injection of diphtheria toxoid (2 cc.) is given. After another three weeks the antidiphtheritic immunity is controlled by skin reaction. Complications did not develop in any of the 19 children vaccinated during the double vaccination. The antidiphtheria immunizing power was tested on 14 of the 19 children and proved 100 per cent successful. The antivariola immunity resulting from combined vaccination was tested on rabbits by Sobernheim's method. It was found that the group of animals vaccinated against diphtheria reacted to the solutions of lymph slightly more than the nonvaccinated rabbits. The author regards the combined vaccination against smallpox and diphtheria as a distinct advancement.

Culture of Ultravirus.-Hauduroy points out that for a long time it was accepted that ultravirus cannot be cultured, its growth having failed in numerous mediums. This failure of growth was due to disregard of an essential law of the physiology of ultravirus. Rabic, poliomyelitic and vaccinal virus will not grow in gelose, bouillon or synthetic mediums, no matter how rich. Ultravirus develops only in the presence of living matter; it is biotropic and possesses an essential, exclusive and imperative affinity for living matter. Without such matter it can neither survive nor develop. Vaccinal virus may be developed by inoculation of a heifer's flank and rabic virus by inoculation of the medulla of a rabbit. The author reviews attempts to culture ultravirus in symbiosis with tissue cultures. The characteristic designated as biotropism is so imperative that it dominates not only the technic of culture but all the affinities of ultravirus. The living cell is necessary for their development, and the more intense the life processes of the cell, the more intense is the development of the virus. It has greatest affinity for cells undergoing multiplication. The culture of ultravirus is now possible.

Immunity After Scarlet Fever.-Freudenberg investigated the frequency of secondary attacks of scarlet fever in the same person, the negativity of the Dick test after scarlet fever and the blanching phenomenon of the serum at the end of the disease. He defines as a secondary attack one occurring after an interval of more than three months. The establishment of this interval is important because relapses may occur during the primary attack. He cites reports on the incidence of secondary attacks of scarlet fever and states that in his own material of 1,200 cases there were 19 such attacks. The interval between the first and second attack varied from five months to seven years. Mostly children less than 6 years of age had a second attack. The Dick test was made on 303 convalescent patients with scarlet fever at the end of the sixth week, and 47 per cent were found to be positive. Classification of these patients according to age levels disclosed that positivity predominates among the young children and that only in children over 10 years of age does negativity reach 75 per cent. The blood serum of the majority of those with a positive Dick reaction did not produce the Schultz-Charlton (blanching) phenomenon, whereas the serum of the majority of those with a negative Dick reaction

(6 of 10) did produce the blanching phenomenon. The serum of none of the children less than 6 years of age manifested the blanching phenomenon at the end of the sixth week of the attack of scarlet fever. The author concludes that in children of less than 10 years of age it is unjustified to regard scarlet fever immunity as certain six weeks after the attack. He believes that this immunity is generally overestimated.

#### Rivista di Malariologia, Rome

20:229-300 (July-Aug.) 1941. Partial Index

Malarial Inoculation Through Sternal Bone Marrow .-Quattrin withdrew blood from patients artificially infected with tertian malarial parasites in the course of the fifth or sixth febrile attack and injected from 3 to 8 cc. of this blood into the sternal bone marrow in 9 cases. Samples of sternal blood. were withdrawn at intervals during the first three hours after inoculation. The malarial parasitic forms disappeared rapidly from the sternal bone marrow in all cases but 3, in which scanty normal intracrythrocytic forms were found in the marrow within seventy minutes after inoculation. The reticuloendothelial cells and the protoplasm of the myeloid cells did not contain parasitic forms in any case. Malaria developed in 6 cases after an average incubation period of nine days. The prolonged incubation period in 6 cases and the lack of development of malaria in 3 cases were not related to the amount of blood injected, the number of parasites in the blood and the phase of cyclic evolution of the parasite. The author believes that the bone marrow has a particular effect on malarial parasites which prolongs the incubation period beyond that requisite after intravenous inoculation.

#### Anales de la Cátedra de Patología, Buenos Aires 3:1-220 (June) 1941. Partial Index

*Artificial Pneumothorax in Pulmonary Tuberculosis Complicating Asthma. R. F. Vaccarezza and R. Cucchiani Acevedo.-p. 67.

Artificial Pneumothorax in Pulmonary Tuberculosis and Asthma .- Vaccarezza and Cucchiani Acevedo made manometric determinations of intrapleural pressure and roentgen studies of the lung before, in the course of and after acute attacks of asthma in cases in which unilateral or bilateral artificial pneumothorax had been induced. Three cases are reported. In 2 cases of unilateral slightly hypertensive pneumothorax the manometric figures showed acute increase of intrapleural pressure during the attack. Administration of bronchial antispasmodic drugs failed to control the attack, which could be permanently controlled by removal of intrapleural air by pleural puncture. In the third case the pneumothorax was bilateral. It was slightly hypertensive in one lung and hypotensive in the other. The intrapleural pressure was not measured during the attack, but roentgen examination showed reexpansion of the lungs and opening up of the cavities. The acute attacks of asthma were controlled by administration of epinephrine. Immediately after control of the asthmatic attack roentgen examination of the lung was again performed. It revealed a greater collapse of the lung and diminution in the size of the cavity. Immediate discontinuance of pneumothorax resulted in a complete control of the asthmatic attacks. The author believes that bronchial expiratory obstruction which occurs in the course of acute attacks of asthma is the cause of acute expansion of the lung and increase in the intrapleural pressure. In asthmatic tuberculous patients the cavities offer great resistance to closure by pneumothorax. This makes it necessary to reach a pressure equivalent to or slightly higher than the atmospheric pressure.

# Brasil-Medico, Rio de Janeiro

55:733-746 (Nov. 1) 1941. Partial Index

*Intrapleural Pneumonolysis in Prevention of Tuberculous Bilateralization, R. Pardellas and J. Carvalho Ferreira.—p. 733,

Intrapleural Pneumonolysis in Prevention of Tuberculous Bilateralization.—Pardellas and Carvalho Ferreira subjected to pleuroscopy a large group of patients with unilateral artificial pneumothorax for pulmonary tuberculosis. Those found to have adhesions were placed in one of two

groups. Patients in one group were treated by pneumonolysis after the second or third insufflation of air. Those in the second group were not thus treated. The improvement in the general condition of patients subjected to pneumonolysis was more evident than improvement in the group which did not have pneumonolysis. Immediate or late recurrence and bilateralization did not occur in patients of the first group, whereas it did occur in several patients of the second group. The authors emphasize the importance of pleurolysis as a routine when adhesions develop after unilateral pneumothorax. The facts that the condition of the patient is apparently good after the establishment of pneumothorax, that the adhesions are not visible on roentgen examination and that the sputum has become negative for tubercle bacilli are no argument against the performance of pneumonolysis. The authors observed in their municipal tuberculosis department that a large number of patients had bilateral pneumothorax during 1938, 1939 and 1940. The performance of pneumonolysis as a routine was established and has been practiced in the department since 1940. Early pneumonolysis stimulates defense reaction of the body and a specific reaction of the normal lung through which the resistance of the organ increases.

# Hospital, Rio de Janeiro

21:1-150 (Jan.) 1942. Partial Index

*Vitamin C: Effects on Diuresis. R. João Marques and R. Ribeiro. -р. 119.

Dielectrolytic Administration of Vitamin Bi in Neuropathic and Myo pathic Syndromes. S. Brown.-p. 131.

Effect of Vitamin C on Diuresis .- João Marques and Ribeiro administered vitamin C to patients with moderate insufficiency of the liver and to patients with atrophic cirrhosis, edema and ascites. Acute oliguria, which was present in all cases, was controlled by administration of vitamin C. preparation used contained natural and synthetic vitamin C in equal amounts. It was administered for a week by intramuscular injection in daily doses of 5,000 units. Some patients were given a second week of treatment with daily doses of 2,000 units. In all cases the elimination of urine was greatly increased. The patients were discharged without edema and ascites and with normal elimination of urine. Four cases are reported. The author believes that vitamin C improves hepatic function with consequent improvement in the water metabolism and in the functions of the capillaries and of the kidneys.

# Revista Clínica de S. Paulo, São Paulo 10:107-144 (Oct.) 1941. Partial Index

*Therapy of Cretinism. L. DéCourt .- p. 125.

Therapy of Cretinism .- DéCourt states that the main factors in the successful therapy of cretinism are early diagnosis and adequate thyroid therapy. The daily dose varies from 0.0065 to 0.048 Gm. of thyroid for infants, from 0.032 to 0.097 Gm, for children aged 2 to 4 years and from 0.065 to 0.191 Gm, for children from 4 to 12 years of age. The treatment should be administered without interruption all through the life of the patient.

# Geneeskundig Tijdschr. v. Nederl.-Indië, Batavia 81:2329-2376 (Nov. 4) 1941. Partial Index

Chloasma, with Discussion of Theoretical Foundations of Vitamin C Therapy: Two Cases. P. H. J. Lampe.—p. 2342.

Experience with New Method (Massive Arsenotherap) by Intravenous Drip) in Treatment of Sphilis. J. Bryan.—p. 2350.

Erythema Infectio-um, or Fifth Disease. D. P. R. Keizer.—p. 2368.

New Method in Treatment of Syphilis. - Bryan calls attention to the intravenous drip method of massive arsenotherapy first employed by Hyman of New York and Tzanck of Paris. In the last two and a half years Bryan used this method in 32 cases. He administered daily by intravenous drip 1.5 Gm. of neoarsphenamine diluted in 300 cc. of physiologic solution of sodium chloride. The procedure is repeated three days in succession until a total of 4.5 Gm. of neoarsphenamine has been given. The short duration is the chief advantage of this method, because it enables the patient to regard treatment as a sort of operation instead of being obliged to return regularly for injections over long periods. The method involves certain dangers. In 4 patients (12.5 per cent)

the renal function became seriously impaired, but the disorder cleared up in a short time and no permanent injury of the kidney resulted. In 3 patients (11 per cent) mild peripheral neuritis developed. The author, unlike other observers, encountered no instances of cutaneous disease following massive arsenotherapy. Although more time will have to elapse before final evaluation is possible, the author is favorably impressed with the method and suggests that in a modified form it might become the method of choice for the treatment of early syphilis.

# 81:2377-2476 (Nov. 11) 1941. Partial Index

*Significance of Pregnancy Reactions According to Aschleim-Zondek and Friedman in Diagnosis of Hidatid Mole and Chorioepitheliomi R. E. J. Ten Seldam.—p. 2378.
Malignant Tumors of Intestine. S. Tjokronegoro—p. 2394.
Further Experiences with Aspiration Punctures in Histologic Diagnosis of Tumors. H. Müller.—p. 2421.
Regulary Treatment of Communication Communication Processing Treatment of Communication Processing Processing Communications and Communication Processing Communications and Communication Processing Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Processing Communication Proces

Roentgen Treatment of Cutaneous Carcinomas. G. J. Staverman,-

Roentgen Diagnosis of Malignant Pulmonary Tumors. W. Z. Johannes.

Histologic Peculiarities of Carcinoma of Tongue. G. Bras .- p. 2465.

Pregnancy Reactions in Diagnosis of Hydatid Mole and Chorioepithelioma.—Ten Seldam reports his experiences with Aschheim-Zondek and Friedman reactions during five years, in which eight hundred tests were made. Of this number one hundred and sixty-two were made because of suspected mole, of suspected malignant degeneration of a mole, as control after birth of a mole or after uterine extirpation for chorioepithelioma. These one hundred and sixty-two tests were made on 109 patients, of whom 58 had molar pregnancy, 8 had chorioepithelioma and 43 had neither. The author concludes that the tests for gonadotropic substance in the urine of women represent a distinct diagnostic gain. However, too great importance should not be attached to a high level of the substance during the first months of pregnancy for the diagnosis of hydatid mole. Lower values than are customary for hydatid mole do not constitute an absolute sign against this diagnosis. Of greatest importance is the quantitative reaction as control following the birth of a mole. If the reaction remains strongly positive for a long time or if it increases in severity after an initial reduction or a negative phase, it is strongly suggestive of chorioepithelioma, if a new pregnancy can be excluded. The test must be repeated at regular intervals until it becomes negative, and even after that it must be repeated at least once. The time necessary to produce a negative reaction is of less importance than the regular decrease in the intensity of the reaction. The reaction should be negative one month after the total extirpation. Absence of a negative reaction indicates metastasis. It is possible that at one time not enough chorionic tissue is present to make the reaction positive, but still enough for the development of chorioepithelioma. It is desirable to make the test also with spinal fluid in cases in which molar pregnancy or chorioepithelioma is suspected.

#### Ugeskrift for Læger, Copenhagen 103:1331-1356 (Oct. 16) 1941

*Treatment of Pneumonias in Childhood with One Single Large Doce of Sulfathiazole (Shock Dose), Illustrated by Seventy Caces. C. Friderichsen and P. Spbye.—p. 1331.
Sulfathiazole Rapid Treatment of Gonorrhea. P. Bonnevie.—p. 1342.
Pellagra: Case. M. Iversen.—p. 1343.
Deep Pressure Necrosis Caused by Ordinary Rubber Band: Cace.
J. V. Nielsen.—p. 1345.

Treatment of Pneumonia in Childhood with Single Large Dose of Sulfathiazole.-Friderichsen and Søbye state that in the treatment of pneumonia in children sulfathiazole is an exceedingly valuable agent, superior to sulfapyridine because of its rapid elimination and the few side effects. Of 129 children with pneumonia treated with sulfathiazole, 70 were given a single shock dose and 59 were treated with multiple doses for four days. The simpler administration of the large dose is as effective as the treatment with multiple doses, causes fewer secondary toxic effects and costs half as much as the continuous treatment. The shock dose of sulfathiazole given children weighing up to 13 Kg, was 0.3 Gm, per kilogram of body weight. while children weighing 20 Kg, received 0.2 Gm, and those weighing 30 Kg. received 0.14 Gm. per kilogram of body weight; the maximal dose was 4 to 5 Gm.

# Book Notices

The Retina: The Anatomy and the Histology of the Retina in Man, Ape and Monkey, Including the Consideration of Visual Functions, the History of Physiological Optics and the Histological Laboratory Technique. By S. L. Polyak, M.D. A Fittleth Anniversary Publication of the University of Chicago Press. Cloth. Price, \$10. Pp. 607, with 100 illustrations. Chicago: University of Chicago Press, 1941.

The object set by the author in his book is "the elucidation of the complex structure of the retina: the identification of the types or varieties of neurons which compose it, and the understanding of their synaptical relationships . . . the modes of integration of the various nerve cells into a composite texture." Beginning nine years ago with examination of the monkey's retina by analytic methods, the author was led into a most extensive study of the retina of other animals, including man. Although his own investigation was undertaken from the point of view of neuroanatomy, any one who expects a dry and technical exposé of isolated histologic findings is due for a pleasant surprise in this book, for the author has included a history of conceptions of the visual processes through the ages and has arrived at some exceedingly stimulating ideas as to the relations of the various functions of the eye to the complex structures revealed by him and by other students in this field.

A technical section describes the various methods employed in study of the retina and the part played by each in the analysis of the retinal neurons. Since a study of the synapses occurring in the retina was of primary importance, stress is placed on the value of the supravital staining method of Ehrlich and the silver and gold impregnation method of Golgi with its modifications by Ramón y Cajal.

For his historical section the author has gone back to Greek and Latin sources and, with the aid of Max Meyerhof of Cairo, to the Arabic manuscripts. A number of diagrams of the visual apparatus, some not previously printed, are reproduced from these sources. The story of how our present knowledge of the visual apparatus has developed from the mass of misconceptions embodied in Greek and Arabic writings, of the bypaths and blind alleys on which early scholars were led to depart as a result of persistently erroneous authority and of how the results of technical progress, finally coming into the possession of a few men of genius such as Kepler, Müller and Ramón y Cajal culminated in our present conceptions of visual function, is a fascinating one. Briefly, the Greek ideas which placed the seat of vision in the crystalline lens were preserved and disseminated by Arab scholars and, after the darkness of the middle ages, were taken up by the first European writers, the link of continuity being the writings of the Moorish scholars in Spain. One of these Arabic scholars, Ibn Rushd, better known as Averroës, had in the twelfth century described, probably from an unknown Greek source, a conception of the image formed on the retina. It was not until 1583 that Platter of Basel offered a development of this idea, including the refraction of light rays by the dioptric media. He proved that the retina is the place where the visual image is formed. It remained for Kepler, however, in 1603 to calculate the effects of the refractive media and to provide exact formulas on which modern physiologic optics rests. Study of the retina was hampered by the belief that the photoreceptors must be on the vitreous surface, so it was not until 1853 that Müller proved the rods and cones to be the true photoreceptors. Study of the individual neurons in the retina first produced useful results in the hands of Ramón y Cajal and his pupils, but since his time little progress has been made until the work of the author.

His work, as shown by many finely reproduced illustrations in this book, included a careful study of the individual retinal neurons by analytic methods, with emphasis on the synaptic connections of the various units. The details of this work are too complex to be even touched on in a review. One comes out of it, however, with a conception of an integrated system of structures much more complex than would be obtained from presentations of the subject in textbooks of ophthalmology or anatomy. While more complex, it is also more complete and offers the possibility of explaining certain phenomena of vision

in ways which were previously impossible. Without abandoning his role as neuroanatomist, the author has had the courage and imagination to follow his microscopic observations to conclusions concerning the part which the retinal structure may be supposed to play in the complex processes of vision. One of these is color vision. The author finds no evidence for the existence of separate types of cones which might be receptive to light of certain wavelengths. He believes that each cone is capable of response to all colors and suggests that analysis of this reaction produced in the cones may be carried out through the connections of each cone with bipolar cells of different type. There are actually reasons for believing that the midget bipolar cells may be especially sensitive to the reaction induced in a cone by light of long wavelength.

The monosynaptic midget bipolar cells and the midget ganglion cells are seen to have a one to one connection with the cones, especially with the specialized thin cones found in the foveal region. These connections form a "pure, or private, cone system" which seems to represent "the instrument for the most delicate spatial analysis or discrimination of the visual stimuli." By connections with other polysynaptic or diffuse bipolar cells, however, and through them with several ganglion cells of various types, impressions from larger or smaller areas of the retina may reach the central nervous system. By synapses of various types "gateways" of varying permeability are formed, by which it is conceivable that weaker stimuli, for example, may reach only certain types of bipolars and produce a specific response in them only when a number of photoreceptors are stimulated, hence mediating coarser impressions of larger objects. The system of intraretinal association neurons represented by the horizontal and possibly some of the amacrine cells may function in some way so as to lower or increase the threshold of the photoreceptors.

These are only a few of the ideas which are to be found in Dr. Polyak's book. Further studies have led him to a consideration of the higher visual pathways. These are briefly summarized in this book and will form the subject of another volume. In format and in reproduction of illustrations the book is up to the highest standards.

Science and Sanity. An Introduction to Non-Aristotelian Systems and General Semantics. By Alfred Korzybski, Director Institute of General Semantics, Chicago. With supplementary introduction and bibliography. The International Non-Aristotelian Library Publishing Company. Second cilition. Paper. Price, \$6. Pp. 798, with Illustrations. Lancaster, Pennsylvania & New York: Science Press Printing Company, Distributors, 1941.

Language in Action. By S. I. Hayakawa, Assistant Professor of English, Illinois Institute of Technology, Chicago. Cloth. Price, \$2. Pp. 245. New York: Harcourt, Brace & Company, 1941.

Language Habits in Human Affairs: An introduction to General Semantics. By Irving J. Lee, Ph.D. With a foreword by Alfred Korzybski Cloth. Price, \$1.75. Pp. 278, with illustrations. New York & London: Harper & Brothers, 1941.

- 1. This volume, from the Institute of General Semantics, is obviously the basis of many of the current writings in semantics which have attracted such large public audiences. The average reader would do well to consult such works as those of Stuart Chase on "The Tyranny of Words" and Hayakawa on "Language in Action" as an introduction to this more profound contribution. As Stuart Chase has said, "Korzybski has spent ten years on the book, raiding nearly every branch of science, from neurology to the quantum theory, in a stubborn attempt to find how words behave, and why meaning is so often frustrated." The author, who is both a mathematician and an engineer, has endeavored to synthesize human knowledge in various sciences with a view to making all knowledge more understandable. The author finds in his study of semantics an approach to psychosemantic disorders.
- 2. It might seem strange to have a book on the proper use of English written by a Japanese, but this book has the special value of simplicity in its approach to the subject, giving to words a significance such as they do not have until one is fully informed of their meanings.
- 3. In these times, when the deliberate misuse of language is an art and when people need more and more to be able to comprehend everything that is said, such books as these are veritable

guide books to human understanding. The book by Lee contains some excellent line drawings, and each of the chapters is supplemented with hints for further study on the use of language in human affairs.

Help Your Boctor to Help You When You Have Food Allergy. Dr. Walter C. Alvarez, Editor-in-Chief. Cloth. Price, 95 cents. Pp. 50. New York & London: Harper & Brothers, 1941.

Help Your Doctor to Help You When You Have Sick Headache or Migraine. Dr. Walter C. Alvarez, Editor-in-Chief. Cloth. Price, 95 cents. Pp. 37. New York & London: Harper & Brothers, 1941.

Help Your Doctor to Help You When You Have Colitis. Dr. Walter C. Alvarez, Editor-in-Chief. Cloth. Price, 95 cents. Pp. 30. New York & London: Harper & Brothers, 1941.

Help Your Doctor to Help You When You Have Gastric or Duodenal Ulcer. Dr. Walter C. Alvarez, Editor-in-Chief. Cloth. Price, 95 cents. Pp. 53, with 3 illustrations. New York & London: Harper & Brothers, 1941.

Help Your Doctor to Help You When You Have Gallstones and Disease of the Gallbladder. Dr. Walter C. Alvarez, Editor-in-Chief. Cloth. Price, 95 cents. Pp. 41, with 5 illustrations. New York & London: Harper & Brothers, 1941.

These books are the first of a series written to supply answers to the questions which enter the minds of sick persons concerning their ailments. A patient with accurate and up-to-date information concerning his disorder should cooperate more intelligently with the physician. The material presented in the books is scientifically accurate, as it must be when prepared by authorities of such ability in their various fields of medical practice. The presentation is clear and simple enough to permit of complete understanding by the average person.

Essentials of Prescription Writing. By Cary Eggleston, M.D., Associate Professor of Clinical Medicine, Cornell University Medical College, New York. Seventh edition, Cloth. Price, \$1.50. Pp. 135. Philadelphia & London: W. B. Saunders Company, 1942.

One of the severest critics of any publication is time. That "Essentials of Prescription Writing" is in its seventh edition is an excellent indication of the usefulness of this little book. It began as an accumulation of a series of notes which were published in book form in 1913. As the author points out, the nature of the book precludes radical changes in this edition; nevertheless, revisions are evident. For those not familiar with the book, its purpose is best described by the author's brief statement "This small volume is intended to provide the student of medicine with a succinct yet sufficient treatment of the subject of 'prescription writing.'" It does just that. There are eleven chapters: introduction, Latin grammar, grammatical construction of prescriptions, weights and measures, the practical writing of prescriptions, doses of drugs, vehicles, incompatibility, modes of administration of medical agents, suggestions for prescribing official preparations and practice prescriptions. As in previous editions, these chapters are presented in a flowing but concise style with a minimum of verbiage. This is a handy pocket size book that is an addition to the library of any medical student, physician or pharmacist or, for that matter, to the library of any one who is actively interested in prescribing, compounding or promulgating drugs. It is gratifying to note the acknowledgment given to Dr. Robert Hatcher for "inspiration and encouragement." Dr. Hatcher has provided this for many of our present critical investigators.

Prevention of Malocclusion, By Paul Guy Spencer, D.D.S. Cloth. Price, \$5. Pp. 254, with 217 illustrations. St. Louis: C. V. Mosby Company, 1941.

By the statements of the preface, this is intended as a text-book for dental students and as a guide for practitioners. A glance at the table of contents shows that twelve of the eighteen chapters are related to treatment rather than to prevention. Diet, internal secretion and inheritance are covered in nine pages. Many years ago Dr. E. H. Angle and other investigators pointed out that many, if not most, malocclusions have their beginning in simple conditions from which most complicated ones may develop. Attention to these conditions at the beginning may result in normal development. This is the fundamental thesis of value in the book, but it is not as clearly or as well developed as it was forty or fifty years ago. The book contains many excellent observations. With a great many of

the views expressed, however, the reviewer finds himself in violent disagreement. The title is ill chosen, for the work is rather a superficial manual on the treatment of malocclusion than a textbook on prevention. It seems intended to encourage the general practitioner and the student to attempt orthodontic management without adequate knowledge and training. Although the text contains much fine material, it is not well organized and does not display clear thinking. The illustrations, especially the pictures of dental models, are poor, and in general the technic is antiquated and obsolete. It is not well adapted to use as a college textbook or to the needs of the general practitioner who aims to give his patient the best service. There is no justification for the attitude that only persons endowed with special gifts and training are capable of practicing a special field in their general practice, but they should not be encouraged to offer special service unless they are willing to acquire the knowledge and technic necessary for its execution.

Our Climate. Useful Information Regarding the Climate Between the Rocky Mountains and the Atlantic Coast, with Special Reference to Maryland and Delaware. Prepared by John R. Weeks. Issued by the Maryland State Weather Service. Edward B. Mathews, Director. In Cooperation with the United States Weather Bureau. Francis W. Relchelderfer, Chief. Sixth edition, revised. Paper. Pp. 66, with Illustrations. Baltimore, 1939.

Claiming that the climate of Maryland and Delaware is one of the best in the United States, this little book proceeds to paint a rosy picture of the natural advantages of this region. It is admitted that the summers are warm, but it is claimed that cool spells usually come to temper this warmth. No mention is made of the really depressive heat which prevails when these cool spells fail to come. The book has practically no bearing on health or disease, as the climate of Maryland and Delaware has no known health advantages that would recommend it to sick persons seeking a more healthful place of abode.

The 1941 Year Book of Public Health. Edited by J. C. Gelker, M.D., Dr.P.H., Director of Public Health, City and County of San Francisco. Cloth. Price, \$3. Pp. 544, with 20 illustrations. Chicago: Year Rock Publishers, Incorporated, 1941.

The second of the Year Book series on public health provides excellent and useful material for physicians and public health workers, whether they are administrators, field workers or epidemiologists. The most valuable articles selected from the leading professional journals both here and abroad have been carefully abstracted, and the editorial comments aid materially in evaluating the points of view expressed in many of the original papers. The practicing physician will find many articles abstracted which he may not have encountered in his usual reading. At present, when public health is in the forefront of the physician's mind, this book has particular importance.

Aguas curativas y lugares de recreo de México. Por el Dr. Harry Petters. Paper. Pp. 130, with illustrations. Mexico, D. F.: Editorial Orbis, 1941.

Balneoterapia crenoterapia: indicaciones y contraindicaciones. Por el Dr. Harry Petters. Paper. Pp. 50. Mexico, 1941.

These two publications make available general information concerning the various mineral resorts and so-called curative springs in Mexico. The publications include also the usual commercial announcements of some of these resorts and their products. Similar publications are available for other countries, but as far as we know nothing similar or even slightly comprehensive has been prepared for the United States. Perhaps the new Committee on American Health Resorts of the American Medical Association will be able to develop a publication of this kind with authoritative scientific statements.

Common Skin Diseases. By A. C. Roxburgh, M.A., M.D., B.Ch. Physician in charge of the Skin Department, St. Bartholomew's Heavilla, London. Sixth edition. Cioth. Price, 16s. Pp. 426, with 197 illustrations. London: H. K. Lewis & Co., Ltd., 1911.

This continues the excellence of the previous editions. The author has endeavored to bring the book up to date by adding sections on thorium X dermatomyositis and has expanded the chapter on avitaminoses. The book is exceedingly well written and well balanced with a useful chapter presenting an index of preliminary diagnosis for students.

# Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. Anonymous communications and queries on postal cards will not DE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

#### THROMBOPHLEBITIS, PUERPERAL SEPSIS AND PULMONARY EMBOLISM

TO the Editor:—What differentiation can be made between thrombophlebitis and puerperal sepsis when pulmonary embolism occurs as a postpartum complication? Can thrombophlebitis occur without bacterial invasion of the blood stream? Would four or more negative blood cultures and negative cultures of the vaginal secretions be considered sufficient evidence to rule out bacteremia? Would the use of heparin interfere with the localization and resolution of small pulmonary embolism?

Chiles D. Frell M.D. Middletown, N.Y.

Stiles D. Ezell, M.D., Middletown, N. Y.

Answer .- Puerperal sepsis is a broad term under which are grouped all the infections of the reproductive tract which occur in the puerperal woman. Thrombophlebitis is one manifestation of this complication. The veins of the placental site may contain septic thrombi which may gradually extend to involve the pelvic veins. These thrombi provide emboli which may be transported to distant foci. Most often pulmonary emboli arise from thrombi in the uterine or ovarian veins. The episodes of chills and fever which characterize the septic course of thrombophlebitis are the result of showers of bacteria in the form of small emboli which invade the systemic circulation. Bacteremia is usually present in thrombophlebitis. However, there may be few organisms in the blood at any one time. Thus a negative blood culture or several such cultures do not rule out thrombophilebitis.

The proper technic of blood culture will increase the incidence positive results. The blood should be drawn during a chill of positive results. or at the height of the fever. Fifteen or 20 cc. should be placed in nutrient broth and incubated for a week. If a growth appears it should be subcultured aerobically and anaerobically.

Thrombi in veins can occur without bacteremia, as is exemplified by thrombi in the lower extremities. These are the result

of blood stasis and trauma to veins.

There is little information available on the use of heparin in puerperal thrombophlebitis. If heparinization is commenced early it is possible that thrombosis and subsequent embolic phenomena can be prevented. Apparently little can be accomplished by heparin after pulmonary embolism has developed. Heparin therapy should not interfere with the normal resolution of pulmonary infarction.

#### TREATMENT AND MARRIAGE IN LATE CONGENITAL SYPHILIS

To the Editor:—In the course of a routine hospital examination in 1936 a youth was found to have a 4 plus Wassermann reaction. The report of findings was given to the mother, who readily admitted that the father had syphilis. She submitted to a blood test and was also found to have a 4 plus Wassermann reaction. For four years the youth was given intensive treatment with neoarsphenamine, bismuth compounds and iodides. A recent blood test was 2 plus. The patient is feeling well with no objective or subjective signs of syphilis. He is now of age and contemplates marriage. In view of the blood findings should he marry? What advice should be given him? Should intensive treatment still be persisted in and, if so, how much longer?

M.D., California.

Answer.—From the evidence given it is presumed, although not definitely proved, that the youth in question has late congenital syphilis. Under these circumstances seroresistance in spite of prolonged antisyphilitic treatment is not unusual. Before permission to marry is given his spinal fluid should be examined. since the question of further treatment and, if so, of what type depends entirely on the character of the spinal fluid.

If the spinal fluid is normal the patient, having received four years of chemotherapeutic treatment, has now been adequately treated. The aim of treatment in such a situation is the prevention of outspoken clinical manifestations of disease. With the amount of treatment so far given there is about an 80 to 90 per cent assurance of indefinitely continuing good health, regardless of the serologic outcome in the blood.

If, on the other hand, the spinal fluid is abnormal, treatment should almost certainly be continued, though what kind of treatment should be given and over what period of time cannot be stated without knowledge of the spinal fluid findings.

As to marriage there can be no objection to this under either set of circumstances, provided the fiancée knows that the patient

has congenital syphilis. There is no risk of infection to the wife from a husband with late congenital syphilis; and children, if any, will be normal if the mother is not infected.

The reason for insistence on informing the fiancée of the patient's condition lies entirely in the fact that possible subsequent progress or relapse, most likely in the form of interstitial keratitis or nerve deafness, cannot be absolutely guaranteed against. Should the fact of the husband's infection, even though congenital, be accidently discovered by the wife after marriage rather than honestly discussed before, there is some risk of marital discord.

Neither in patients with congenital nor in those with acquired syphilis does permission to marry (which depends almost entirely on potential infectiousness and on no other factor) have anything to do with the blood test.

The issues raised regarding the treatment of late congenital syphilis and regarding the marriage of syphilitic patients are much more fully discussed in Moore's Modern Treatment of Syphilis, second edition, Springfield, Ill., Charles C. Thomas,

#### "SHIN SPLINTS"

"SHIN SPLINIS"

To the Editor:—I should appreciate information on a condition known as "shin splints." After many years of physical inactivity due to a fracture of the semilunar cartilage sustained while playing college football I have recently been ottending a Y. M. C. A. regularly in an attempt to get back in shape. I weigh 230 pounds (104 Kg.), about 40 pounds (18 Kg.) overweight. I have been playing "paddle ball," which is similar to four wall handball, possibly faster. I frequently have pain over the lower half of the tibia while playing, starting mildly but getting more severe as I continue to play. This is associated with a tired aching feeling in the thighs extending up to the hip. This lasts for about twenty migutes after I ston playing, after which a dull ache for about twenty minutes after I stop playing, after which a dull ache persists for hours, and the tibia is sensitive to percussion. A former track star at the Y mentioned that the syndrome was common in athletes, being known as "shin splints." Could you give me any information on the entity? Paul T. Perugini, M.D., New Rochelle, N.Y.

Answer.—The term shin splints is used by athletes, especially track men. The condition is probably due to myositis of the tibial and toe extensor muscles. It may be tendonitis, myositis or myofascitis with an element of periostitis. It is usually due to multiple minimal traumas, such as occur in tapping against hard surfaces, such as a track, a cement floor or a hard wood floor in a gymnasium. It may be due to repeated sudden starts and stops.

In nearly every athletic pursuit one leg is subject to more shocks than the other. Is the condition unilateral or bilateral?

A roentgenogram of the tibia would rule out periostitis or any other lesion, including a neoplasm. Reduction of the weight

is advised.

While at the University of Chicago, in charge of the medical supervision of athletic teams, Molander saw many such injuries, and in the majority of instances they were in track athletes.

They also occurred in football and basketball players.

The early diagnosis of the condition is sometimes difficult. In the great majority of instances the athlete states that he has a dull aching pain over the anterior surface of the middle and lower thirds of the tibia and fibula and that he finds it hard to raise the heel from the floor without experiencing a sharp pain over the area described. Shin splints occur as a rule early in the season and in the majority of cases are caused by running on a hard board surface which produces a constant jarring. The patients are slow in recovering.

The most noticeable symptom is severe tenderness over the anterior surface of the lower and middle thirds of the tibia and fibula. This area feels hard and tense. Support by means of circular taping seems to give relief. Molander attributed this condition either to a tearing of the origin of the dorsiflexors of the foot or to a severe tendon strain. The former explanation seems the more plausible because of the persistent aching pain, which becomes intensified, while one clearly an arrange of the persistent aching pain. which becomes intensified while one stands on the toes, and

because of the long recovery period.

In treatment Molander employed a circular adhesive strapping and additional long strips of tape from the knee and around the ankle, keeping it at a right angle. After twenty-four hours the involved extremity is placed in the whirlpool bath at 105 or 110 F. for at least half an hour. Then the part is dried with infra-red radiation; the ankle is kept at all times at a right angle. Drying is followed with massage of the entire extremity, the tender areas being avoided. When tenderness has disappeared a graduated system of therapeutic exercises is used, getting the patient to an upright position for athletic work when function of the foot has returned to normal. This may take weeks or even several months.

's quoted from Thorndike, Augustus: . ention, Diagnosis and Treatment, Philac 1938

Shin splints in track, cross country and other sports are a definite injury-a tearing of the origin of the tibialis posticus muscle from the tibia in its lower third This is caused by running on a hard surface early in the season and continuous, constant jarring and is slow in recovery. Heat and massage with three-quarter circular strapping (squeezing the gastrocnemius around the posterior surface of the tibia) gives relief as long as the strapping is maintained. Rest, of course, is the adjunct most needed, and this should be continued long enough to permit the torn muscle attachment to heal.

#### PROBABLE DIABETIC COMA

PROBABLE DIABETIC COMA

To the Editor —A white housewife aged 28 was seen at home in a severe coma. She was given 1 ampule each of caffeine and nikethanide and had regained consciousness on arrival at the hospital. The history was unreliable, but there was mention of diarrhea and vomiting for two to three days, the length of unconsciousness was unknown There was no history of diabetes or drug addiction. The patient was able to answer questions, but the answers were so garbled that they defied interpretation. There was no odor on the breath. The pupils were widely dilated, and they dilated further in response to light. The chest was clear; the heart sounds were normal, the blood pressure was 110 systolic and 90 diastolic, the rectal temperature was 94 F. The abdominal and rectal examinations gave negative results. There were no neurologic abnormalistes. A working diagnosis of shock due to some unknown toxin was made. Catheterized urine showed sugar 4 plus, albumin 4 plus and many red blood corpuscles, tests for acetone and diacetic acid gave negative results. Four hours after admission the temperature dropped to 93 F. A heat cradle was applied to the body. Examination of the eyegrounds gave negative results. The lumbar puncture showed normal pressure, clear fluid and no evidence of block, the Wassermann reaction of the spinal fluid was negative, the colloidal gold curve was 0000000000, the Pandy reaction was positive (I plus); the fluid shawed a trace of xonthochromia. The temperature reached 102 F., and the patient was still responding in incoherent speech. The white blood count at this time was 63,400, with 94 per cent polymorphonucleur leukocytes, 6 per cent lymphocytes and a shift to the left. The red blood count at this time was 63,400, with 94 per cent polymorphonucleur leukocytes, 6 per cent lymphocytes and a shift to the left. The red blood count are still responding in incoherent speech. The white blood count are 4,200,000 and the hemoglobin content 77 per cent. The blood sugar level was 490 and the non To the Editor —A white housewife aged 28 was seen at home in a severe Charles H. Pitegoff, M.D., New Haven, Conn.

Answer.-Positive diagnosis is not possible from the data available, but those furnished strongly suggest that diabetic coma was the cause of death. The patient was in coma with a low rectal temperature without signs of an organic cerebral lesion and showed glycosuria with evidence of failing renal function in the absence of postmortem evidence of renal disease She showed albumin, a leukocyte count of 63,400 and a blood sugar content of 490 mg., with a nonprotein nitrogen level of 73 mg. per hundred cubic centimeters. It is regrettable that the blood plasma was not tested for acetone and its content of carbon dioxide determined The absence of acetone and diacetic acid in the urine is most unusual in diabetic coma but has been known to occur in cases of renal block.

#### EFFECT OF TEMPERATURE OF INTRAVENOUS SOLUTION

To the Editor—Because of the reaction from intravenous injections of dextrose in saline solution it has been decided to give the solution at room temperature. I should like to know if this is satisfactory after anesthesia and also if it has the effect of lowering the body temperature in the past the solution for intravenous use has been warmed to body M D , California.

Answer .- Reactions in general and chills and fever in particular following the intravenous administration of dextrose in saline solution are due almost entirely to contamination of the solution or of the apparatus used for the administration. If concentrated (50 per cent) dextrose is administered intravenously rather rapidly, because of the high concentration a slight degree of vascular reaction may develop, but even this type of reaction occurs rarely. Although it is more physiologic to administer dextrose intravenously at body temperature, administration of the solution at room temperature should not make any essential difference as far as reactions are concerned If the solution is administered slowly, the temperature of the room should not exert any appreciable influence in lowering the temperature of the patient's body.

# LIFE EXPECTANCY AFTER SPLENECTOMY

To the Editor —I am anxious to obtain information concerning the following 1. Does splenectomy after life expectancy when (a) the spleen is removed for traumatic rupture or (b) the spleen is removed because of dispaths: thrombocytopenic purpura or familial (congenital) hemolytic icters? 2. If a person has had splenectomy because of traumatic rupture of the spleen and is otherwise normal, will insurance companies sell him life inter ance in exactly the same manner as if the spleen had not been removed I have in mind the question of the relation of the spleen to resistance especially as concerns antibody formation. While it appears that nost physicians feel that removal of the spleen is rapidly compensated for his business and the spleen is rapidly compensated for his business. by hyperplasia of the other organs of the reticula-endothelial system I am unable to find in the literature definite experimental or statistical proof of this I am assuming that the patient has fully recovered from the trauma and the operation, so that operative risk is not a factor

Answer .- 1. Removal of the spleen following transatic rupture does not alter life expectancy, assuming that the patient has fully recovered from the effects of the trauma and operation and there are no postoperative complications ment applies to splenectomy for idiopathic thrombocytopenic purpura and familial hemolytic icterus In fact, life expectance in these conditions may actually be increased, since splenectomy often prevents fatal complications for many years Several patients now under observation were subjected to splenectom fifteen to twenty years ago for these diseases and others, such as Gaucher's disease, and they show no deleterious effects attributable to the absence of a spleen. The various functions of this organ are taken over by other organs or tissues of the body. Resistance to various infections, for example, is just as high in these patients after splenectomy as before

2. The practice of insurance companies with regard to lite insurance following splenectomy for traumatic rupture is, in general, as follows: No insurance is issued during the first two years after operation. During the third and fourth years insurance is issued at rates slightly higher than standard. Five years after splenectomy, if there is no complicating disease, the person is insured at standard rates. Apparently during the first two years insurance companies believe there is still a risk of complications secondary to the trauma and operation. If the person is normal five years postoperatively his life expectancy is considered normal. Since the number of cases of splenectom) for traumatic rupture is relatively small, an accurate statistical evaluation of life expectancy is not available to insurance com panies as yet. The few persons under observation have not differed in this respect from the general population

#### STRABISMUS IN A YOUNG CHILD

To the Editor -In Queries and Minor Notes in The Journal, Jan 3, 1942, the tallor—in Queries and Minor Notes in The Journal, Jan 3, 1943, page 93, with reference to strabismus in a young child, your correspondent stated that the good eye should be occluded to compel the use of the other eye to prevent amblyopia. You state that this is "important for several years" You further state that if due care is exercised along these lines," operation may be postponed indefinitely without the sight becoming impaired "

I wish to take exception to these statements. Binocular vision it developed during the first five or six years of life, and even if the visual acuity is maintained by covering first one eye and then the other (which is seldom done) binocularity has been lost to the potent by this form of treatment. By postponing the operation the patient loses the opportunity to develop binocularity and is encouraged to form visions that its such as abnormal retinal correspondence or alternate suppression

of one or the other eye.

The indication in this case is a definite diagnosis as to whether the case is concomitant or paralytic as suggested by the writer, an examination under atropine to determine the refractive condition and the use of glasses if needed

If the case is paralytic, 3 to 5 drops of saturated solution of potassian indied three times a day after eating should be given aver a long period and the encouragement of the head position for the maintenance of beautiful three times.

If the case is concomitant, patching of the good eye, use of glasses if needed, and early orthoptic training are indicated. After one year of this type of care, if the squint has not been relieved, operative procedures are indicated in arder to give the child an opportunity to secure because when the contraction of the child are opportunity to secure binocular vision in early life.

Oscar Wilkinson, M.D., Washington, D.C.

Note. The letter was referred to the authority who prepared the reply. He writes:

To the Editor.—The statements to which the critic takes exception are well established. His advice as to treatment is for the most part radice the writer of the question was not interested in routine ophthalmologic treatment. There is a difference of opinion about the best age at which to operate. A great majority of children are not operated on with they are between 8 and 12 years of age, and good results are obtained. A minority who are fond of, operating advacate early operation. It has not been shown that their results are better. Reoperation is often necessary later. The critic's remark that postponing aperation giving up hope of "binocularity" is not borne out by the facts

# The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 118, No. 16

COPIRIGHT, 1942, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS

APRIL 18, 1942

# THE MENOPAUSAL SYNDROME

TREATMENT WITH THE IMPLANTATION OF CRYSTALLINE ESTRONE PELLETS

HENRY G. BENNETT JR., M.D. AND RICHARD W. TE LINDE, M.D. BALTIMORE

The principle of estrogen replacement therapy in the management of the menopausal syndrome is well established as sound. Estrogen preparations of proved potency have become available during the past decade, and many satisfactory therapeutic results have been reported. The standard method of administration of these estrogen preparations, however, is far from satisfactory as it requires frequent hypodermic or intramuscular injections of the hormone preparations, usually in oil solutions, repeated as often as two to three times each week. Obviously, if it was possible to supply a patient's estrogen requirement for weeks or even months with a single injection, the ideal method of replacement therapy would be more nearly attained.

An approach toward such an ideal method came to hand in 1937 when Deanesly and Parkes 1 announced a new technic in hormone administration whereby solid pellets of crystalline hormone were implanted subcutaneously to be absorbed slowly over a long period of time. Such pellets they found effective in producing prolonged hormonal stimulation in laboratory animals. A year later Bishop treated a young human castrate with a similar subcutaneous pellet of estrone and reported partial relief of menopausal symptoms for five weeks.

Following these promising introductory reports it seemed worth while to subject this new method to extensive clinical trial. Therefore in the fall of 1938 such a study was begun in the gynecologic dispensary of the Johns Hopkins Hospital and a preliminary report of the results in 21 menopausal patients treated with subcutaneous theelin (estrone) pellets was made.3 In this series of patients it was found that, after the implantation of theelin (estrone) pellets, relief of subjective symptoms began within two weeks and persisted as long as fourteen and a half weeks. Objectively it was demonstrated that the urinary estrogen

level rose and remained elevated for correspondingly long periods, that the urinary level of gonadotropic hormone was depressed in 60 to 70 per cent of the cases and that prolonged stimulation of the vaginal mucosa occurred as observed in biopsy specimens. These objective findings were interpreted to show beyond doubt that the theelin (estrone) was absorbed constantly from the implanted pellets for long periods of time and that the estrogenic properties of the absorbed theelin were not impaired by the pellet method of administration.

Other investigators have since reported the effects of various estrogens administered by the pellet method. MacBryde, Freedman, Loeffel and Allen treated 6 surgical castrates with 100 mg. diethylstilbestrol pellets implanted into a small incision in the lumbar region. Vaginal smears showed complete estrous change in seven to ten days. Endometrial biopsies showed "active proliferation" as early as seven days after implantation. Subjective improvement occurred in all cases and persisted as long as the pellets were in place, but symptoms recurred in two to three weeks after the pellets were removed.

Twombly and Millen 5 used 20 mg. pellets of estradiol implanted through a 10 gage needle. Each of the 43 menopausal patients treated received a total of one to three pellets given at intervals of one month. All except 1 of these women showed "moderate to marked improvement or complete cessation of symptoms," and the improvement continued for five to six months. Objective evidence of prolonged estrogen stimulation was demonstrated in endometrial biopsies and vaginal smears.

More recently Mishell 6 reported his experience with 45 to 65 mg. pellets of crystalline estrogens obtained by extraction of pregnant mare's urine. One pellet was implanted in each case through a small incision just above Poupart's ligament. In a series of 19 menopausal women thus treated, all except 1 were relieved of hot flushes for periods of three to five months.

In connection with the pellet method of estrogen administration, mention should be made of a variation of this technic used by Salmon, Walter and Geist.7 They implanted loose crystals of a-estradiol benzoate through a skin incision I inch in length. Doses of 4 to 7 mg. were used. Clinical relief of menopausal symptoms in 10 patients and estrous changes in the vaginal smear persisting for sixty to ninety-eight days were reported. Later the same authors reported a

From the Department of Gynecology, Johns Hopkins University School

From the Department of Genecology, Johns Hopkins Officers, School Medicine.

This study was made possible by a grant from the Rockefeller Foundation Fluid Research Fund

1. Deanesty, R. and Parkes, A. S: Proc. Roy Soc. London, s B
124:279 (Dec. 7) 1937.

2. Bishop, P. M. F.: Brit, M. J. 1:939 (April 30) 1938.

3. Bennett, H. G. Jr.; Biskind, G. A., and Mark, J.: Am. J. Ohst & Gynec. 39:504 (March) 1940

^{4.} MacBryde, C. M; Freedman, Harold; Loeffel, Ellen, and Allen, Duff: Proc. Soc. Exper. Biol. & Med. 43:212 (Jan.) 1940.

5 Twombly, C. H, and Millen, R. S.: Surg., Gynec. & Olist. 72: 605 (March) 1941.

6 Mishell, D. R: Am J. Olist. & Gynec. 41:1009 (June) 1941.

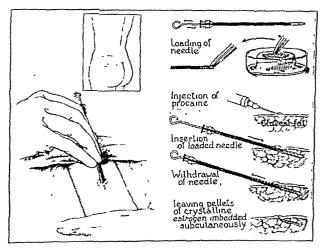
7. Salmon, U. J.; Walter, R. J. and Geist, S. H: Science 90:162 (Aug. 18) 1939.

series of 7 cases treated with the same technic but with larger doses varying from 25 to 50 mg. of crystalline a-estradiol or a-estradiol benzoate.⁵

The present study is concerned with the treatment of 45 menopausal patients in whom we have implanted theelin (estrone 9) pellets subcutaneously. Preliminary observations in 21 of these cases have been previously reported.3

#### TECHNIC

As described earlier,³ our pellets are made by direct compression of pure crystalline estrogen in drilled, machine ground, steel plates. The pellets used are 1.83 mm. in diameter, 2 to 5 mm. in length and 5 to 10 mg. in weight. The estrogen pellets are sterilized in a dry steam autoclave at 250 F. under 15 pounds of pressure for thirty minutes. Implantations in our patients are made through a 12 gage hollow needle fitted with a stilet. The pellets are loaded into the pointed end of the needle with small forceps and the needle is passed through the skin over the gluteal region after procaine infiltration. Pressure on the stilet as



Technic of implantation.

the needle is withdrawn deposits the pellets in the subcutaneous tissues, as shown in the illustration. Sterile technic is, of course, observed throughout the implantation procedure.

#### DOSAGE

The number of implantations per patient has varied from one to five, the average number being one and one half. The average number of pellets per implantation has been eight; the average total weight of estrogen in each implantation was 40 mg. In some of the early cases considerably smaller doses were used, but during the past year a standard dose of 50 mg. has been used almost routinely. This usually requires six to eight of our tablets.

# CLINICAL RESULTS WITH THEELIN (ESTRONE) PELLETS

In evaluating our results we have, as most other investigators, considered the relief of hot flushes to be the most definite criterion. Table 1 shows our clinical results with pellet implantation of crystalline theefin (estrone) pellets, and a comparison is made between

8. Salmon, U. J.; Geist, S. H., and Walter, R. I.: Proc. Soc. Exper. Biol. & Med. 43: 424 (Feb.) 1940.
9. The crystalline estrogen used in this study was supplied as "Theelin" by Parke, Davis & Co. and as "Estrone" by Eli Lilly & Co.

this method of therapy and others with which we have had experience. Of the 45 patients treated with theelin (estrone) pellets, 93.4 per cent considered the results satisfactory. In many of these patients hot flushes disappeared completely, though it is not to be inferred that such was invariably the case. However, in all these cases classed as satisfactory the flushes had decreased to the point at which the treatment was considered by the patient to be highly satisfactory. In most instances the improvement of flushes went hand in hand with an improvement in the patient's sense of well being, Improvement usually began within two weeks following implantation. The great advantage of the pellet method of administration of estrogenic hormone lies in the prolonged duration of the relief of symptoms. Our patients were relieved for an average period of sixteen and two-tenths weeks. The shortest term of relief following one implantation was three weeks and the longest sixty-five. It is probable that the latter patient spontaneously recovered from the menopausal syndrome while under estrogen therapy. None of those who had been previously treated with estrogens administered by hypodermic injections showed less improvement from pellets, and in most cases the degree of relief was definitely greater with pellet implantation.

The use of theelin (estrone) pellets has been remarkably free from unpleasant side effects. At the outset we felt that the introduction of such foreign bodies as our pellets would in certain cases give rise to tenderness, pain or other evidence of local inflammation. Our observations now extend over a period of nearly three years, and in no case has such a reaction been observed in our patients. With theelin pellets we have seen no instance of nausea, vomiting or other evidence of systemic, toxic reaction. In no instance has there been objective evidence of breast hypertrophy, chronic cystic mastitis or subjective complaints suggesting such changes. In 1 case, however, abnormal uterine bleeding did occur, consisting of scanty bleeding for one day appearing three weeks after pellet implantation. It is interesting to note that this particular patient had previously been subjected to roentgen ray castration because of prolonged functional bleeding.

# COMPARISON WITH OTHER METHODS OF THERAPY

In order the better to evaluate the apparent advantages of the theelin (estrone) pellet method of therapy in the menopause we have thought it necessary to present for comparison our results with other therapeutic methods. As shown in table 1, we have treated 145 menopausal women with diethylstilbestrol administered orally. Of 74 patients taking a daily dose of 0.5 mg. or less, only 60.8 per cent were satisfactorily improved. That a larger dosage is more effective is demonstrated in the group of 71 patients, receiving 1 mg. or more of diethylstilbestrol a day, of whom 85.9 per cent showed satisfactory improvement. The greatest apparent success with diethylstilbestrol occurred in the group of 12 patients who received subcutaneous pellets in an average total dose of 53.5 mg. In all these patients the clinical results, with regard to hot flushes, were satisfactory. Thus it is seen that small doses of diethylstilbestrol given by mouth cannot be relied on as adequate but that in oral doses of 1 mg. or more a day or when given as subcutaneous pellets in average doses of 53.3 mg. diethylstilbestrol is reasonably efficient as compared with theelin pellets as far as the clinical relief of symptoms is concerned.

However, when the undesirable side effects are considered, diethylstilbestrol suffers in comparison. When given in oral dosage adequate to insure satisfactory clinical results, diethylstilbestrol induced nausea in 15.5 per cent of the patients. Of those who received diethylstilbestrol pellets nausea, beginning within twenty-four hours after implantation and persisting for seven to ten days, occurred in 16% per cent. It is of interest to note that vomiting did not occur in these cases and that the nausea disappeared after seven to ten days in spite of the fact that the pellets were not removed. addition to these toxic systemic reactions it is startling to find that abnormal uterine bleeding occurred in 36.3 per cent of women with intact uteri receiving 1 mg. or more a day orally. Of the 12 patients treated with diethylstilbestrol pellets 5 had undergone hysterectomy. In the 7 women with intact uteri abnormal bleeding occurred in 5. Even in cases treated with diethylstilbestrol orally in doses too small to insure clinical improvement the incidence of nausea and abnormal uterine bleeding exceeded that found with theelin pellets.

Table 1 .- Subjective Improvement

		Satisfactory		Un- satis-	Per Cent Satis-	Per Cent Un-
Treatment	Cases	Com- pletely	Par- tially	fac- tory	fac- tory	satis- inctory
Theelin (estrone) pellets (average 59.4 mg. per patient)	45	34	8	3	93.4	6.6
Diethylstilbestrol pellets (average 53.5 mg. per patient)	12	11	1	0	100.0	0.0
Theelin (estrone) crystals in aqueous suspension (5.25 mg. hypodermically)	27	6	10	11	59,3	40.7
Oral diethylstilbestrol (0.5 mg, or less daily)	74	22	23	29	60.8	39.2
Oral diethylstilbestrol (1.0 mg. or more daily)	71	40	21	10	85.9	14.1
Oral naturally occurring es- trogens* (3,000 international units daily)		3	3	7	46.0	54.0
Phenobarbital	24	4	8	12	50.0	50.0

^{*} Reed and Carnrick, "Estrogenic Hormone."

In fairness, however, it should be acknowledged that diethylstilbestrol is of the first importance in the investigative phase of menopausal therapy today. Its chief advantages are that it can be effectively administered orally and that it will probably be inexpensive. Since the discovery of diethylstilbestrol by Dodds and his co-workers 16 in 1938 numerous clinical and laboratory studies have proved its high estrogenic potency, even when administered orally. Several investigators have reported it satisfactory in the treatment of menopausal patients. Because of the wide range of dosage employed, varying from 0.1 to 5.0 mg. even in a single study, and because of a lack of agreement as to the frequency of toxic reactions, additional data are needed before the true clinical value of this preparation can be determined.

Another group of patients were treated with theelin crystals in aqueous suspension 11 administered hypodermically in total doses of 5 to 25 mg, given in single injections of 5 to 10 mg. Satisfactory clinical results were obtained in only 59.3 per cent of 27 patients. A small group of 13 cases were treated with natural

estrogen 12 administered in the form of an oral tablet three times a day. The results were considered satisfactory in only 46 per cent.

Finally a group of 24 patients were treated with phenobarbital in doses of ¼ and ½ grain (0.016 and 0.032 Gm.) three times daily. Just half of these reported

TABLE 2 .- Relation Between Duration of Symptoms Before Treatment and Clinical Improvement After Treatment

(Patients Treate	reated with Theelin [Estrone] Pellets) Satisfactory					
Duration of Symptoms	Cases	Completely	Partially	Unsatis- factory		
Less than one year More than one year	20 25	95.0% 60.0%	32.0%	5.0% 8.0%		

satisfactory results. It should be pointed out that the percentage of completely satisfactory results obtained with phenobarbital was quite low. Although sedatives have been justly replaced in a large measure by hormones in the treatment of menopausal symptoms, our results indicate that sedatives such as phenobarbital do give some relief in a goodly percentage of the cases and may be very useful in those cases which do not respond to endocrine therapy.

It has been our impression in dealing with menopausal women that those who are in what might be termed the acute phase of the menopause respond to treatment better than those who have complained of flushes and other symptoms for one, two or more years. One occasionally sees women complaining of flushes ten or more years after their last period. In addition to the flushes, such women often have developed a multiplicity of vague complaints. It appears that many of these patients have found their menopausal symptoms, which at first were real, a convenient expression of their neurotic natures. With the idea of determining whether this admittedly preconceived idea was correct, we divided the women into two groups, those whose symptoms had been present for less than a year and those in whom symptoms had been present for over a year. Table 2 shows the results. It is obvious from this table that the results in both groups were considered satisfactory in over 90 per cent but that 95 per cent of the patients who had had symptoms for less than one year acknowledged that the implantation had completely relieved them. On the other hand, of those who had complained

TABLE 3 .- Relation Between Type of Menopause and Clinical Improvement After Treatment

(Theelin [Estrone] Pellets) Satisfactory Unsatis							
Type of Menopause	Cases	Completely	Partially	inctory			
Physiologic	26	73.1%	15.4%	11.5%			
Surgical castration	14	85.7%	14.3%	*****			
Irradiation castration	5	60.0%	40.0%	•••••			

for over a year, only 60 per cent admitted complete relief. We are inclined to interpret this as indicating that a certain amount of chronic invalidism had developed in many patients of the latter group which naturally could not be cured by endocrine therapy. This suggests to us the desirability of prompt treatment when menopausal symptoms develop before the woman becomes too firmly established as a hypochondriac.

^{10.} Dodds, E. C.; Goldberg, L.; Lawson, W., and Robinson, R.; Nature, London 141: 247 (Feb. 5) 1938.

11. The theelin crystals in aqueous suspension were supplied as "Theelin" by Parke, Davis & Co. and as "Estrone" by the Abbott Laboratories.

^{12.} The natural estrogen was supplied as "Estrogenic Hormone, Oral," by the Reed Carnrick Company

We felt that it might be of interest to determine which type of menopause responded best to pellet implantation of estrone. Accordingly we divided the cases into three groups, the physiologic, the surgical and the irradiated group. Our results are shown in table 3. There were only 5 cases in the last group, and the figures are probably of little significance. Suffice it to say that all of the irradiated group obtained relief but that in 2 of the 5 the relief was only partial. The surgical castrates responded better than either of the other two groups. We are inclined to feel that the reason for this is that most of these patients were castrated in our clinic and were still in close touch with the clinic when their symptoms developed. Hence they were brought under treatment earlier, which we believe is an important factor in the success of treating menopausal women.

The question of the value of the vaginal smear in determining indications for and the results of treatment should be considered in view of the report of Papanicolaou and Shorr.¹³ These investigators lay great stress on the vaginal smear as a means of determining whether symptoms are truly menopausal or psychic in origin. They state that "the menopausal type of smear

Table 4 .- Abnormal Bleeding in Patients with Intact Uteri

Treatment	Cases	Scanty	Profuse	Abnormal Bleeding
Theelin pellets (estrone)	28	1	0	3 5%
Diethylstilbestrol pellets .	7	2	3	71 5%
Theelin crystals in aqueous suspension Oral diethylstilbestrol (05 mg. or less daily)	14 45	1	1	14 3% 8 5%
Oral diethylstilbestrol (10 mg. or more daily)	11	6	10	36 3%
Natural estrogens (oral)	10	0	0	0 0%
Phenobarbital	16	0	1	6 3%

is invariably present after the menopause whether or not symptoms exist. In the latter instance it acquires special significance in that it furnishes an objective index of the symptomatic state." We cannot agree with this completely, for we have seen vaginal smears from untreated castrated women showing an abundance of pure large flat epithelial cells such as one usually finds in younger women with an abundance of estrogen. Of special interest was one woman of 30 who had been surgically castrated three years before. She was having typical severe hot flushes but her vaginal smear showed none of the characteristics of the so-called castrate smear. In general, however, it is true that most symptomatic menopausal women have smears suggesting estrogen deficiency and under the influence of the implanted estrone the smears become of the estrogenic type, but we have frequently noted relief from symptoms without any change in the vaginal smear. Frequently symptomatic relief preceded any change in the vaginal smear and we are inclined to believe that the dosage necessary to relieve the symptoms in many women is less than is required to alter the vaginal epithelium. We do not feel that it is necessary for the practitioner who is treating menopausal symptoms to follow the vaginal smears. In fact, to be guided entirely by the smears would in some instances be misleading. It is a better rule to be guided by relief of symptoms.

#### UTERINE BLEEDING

The production of uterine bleeding in postmenopausal women has frequently been noted by several investigators in the field of estrogenic therapy; hence we are interested in the effect of the implanted pellets of estrone as regards bleeding in the women with intact uteri. Table 4 gives our results. It might be well to define "abnormal bleeding" as recorded in this table. We have considered abnormal bleeding to be intermentivual bleeding or excessive menstrual bleeding in those patients who were still having their periods. In women who had ceased menstruating for one year or more, any show of blood was considered abnormal. There were 28 cases in the group treated with estrone pellets in which the uteri were intact. Of these, only 1 bled scantily. One wonders whether this bleeding was coincidental or caused by the hormone. As a control, one might consider the 16 cases treated only with phenobarbital. One of these women also bled. This bleeding was certainly coincidental to the treatment but it illustrates the well known likelihood of menopausal bleeding to occur spontaneously. Hence it would seem fair to judge from the results that there is no evidence that the estrone pellets were responsible for bleeding in this group. Twombly and Millen,5 on the other hand, found that out of 12 patients treated with pellets of a-estradiol 9 bled. From this they justly concluded that the pellet treatment with a-estradiol is contraindicated in women with intact uteri. No such contraindication would seem to exist when pellets of estrone are used. In a small group of 7 patients with intact uteri treated with diethylstilbestrol pellets, 5 bled. Although this is a very small series, the incidence of bleeding is so great that it would seem to indicate that the use of pellets of diethylstilbestrol is definitely contraindicated in women with intact uteri. The table indicates also that when diethylstilbestrol is administered by mouth in sufficient dosage to make relief of symptoms reasonably sure (1 mg. or more a day) bleeding occurred in 36.3 per cent. Estrone crystals were given in aqueous solution in 14 cases. In 2 there followed abnormal bleeding, whereas in the small group of 10 to whom naturally occurring estrogens were administered by mouth, none bled. It is noteworthy that the therapeutic results in this small group were not very satisfactory.

The importance of using an estrogen which does not cause bleeding at or after the menopause cannot be too strongly stressed, for when the bleeding occurs one cannot be certain whether it is due to the endocrine treatment or is dependent on some serious lesion such as corpus carcinoma and the decision can be made only by curettage. Obviously a preparation which will not cause bleeding is of much advantage, and estrone administered by pellet implantation would seem to fit this category.

In searching for an explanation of the frequent bleeding with diethylstilbestrol, we have called on our experience in treating children for gonococcic vaginitis. It would seem that diethylstilbestrol is more potent in its hormonal action as regards growth stimulation than the natural hormone. For instance, we frequently noted excessive uterine growth when the children were treated with diethylstilbestrol, and this was never noted when the natural hormone was used in comparable dosage by weight, even though the local action of the natural estrogen on the vaginal mucosa was just as effective. The bleeding so frequently noted when dieth-

^{13.} Papanicolaou, G. N., and Shorr. Ephraim: Am J. Obst. & Gynec. 31:806 (May) 1936.

ylstilbestrol is used for menopausal symptoms would seem to depend on this same growth stimulating action on the uterus, for when these bleeding uteri are curetted we usually see evidence of endometrial proliferation in the production of the Swiss cheese glandular pattern and frequent mitoses in the glandular epithelium.

Since the question of the carcinogenic action of estrogenic substance has been raised, it might be in order to consider the possibility of such action when estrogenic pellets are implanted. As already stated, evidence of benign endometrial proliferation was frequently noted when diethylstilbestrol was used, but we have no histologic evidence of this when pellets of estrone were used. Furthermore, we have no clinical evidence from our series that pellet implantation of either estrone or diethylstilbestrol was responsible for any malignant change. Lipschütz and Vargas 14 produced "fibromas" in the uteri of guinea pigs by repeated injections of estradiol and even more effectively produced "fibromas" when tablets of estradiol were implanted. The tumors so produced were all benign and retrogressed when treatment was discontinued. Nelson 15 also produced uterine fibromas in guinea pigs by injecting large amounts of estrogenic hormones. Perloff and Kurzrok 16 implanted pellets of estradiol benzoate in guinea pigs and produced uterine fibromas, but they were unable to do so when pellets of estrone were used. Our clinical experience with pellet implantation causes us to doubt whether these interesting laboratory observations have any clinical bearing; but, if they do, they would seem to indicate that estrone is the weakest growth stimulator of the various estrogens.

#### LABORATORY AND OBJECTIVE EVIDENCE OF ESTROGENIC ACTIVITY INDUCED BY PEL-LET IMPLANTATION OF ESTRONE

When estrogen replacement therapy is adequate, it is possible to demonstrate certain objective evidence of the presence of the replacing estrogen and also evidence of its physiologic activity, as indicated by changes in the genital organs and by the tendency toward decrease of the pituitary gonadotropic hormone. Such evidence is essential in proving the effectiveness of any estrogenic substance and the efficiency of any particular method of estrogen administration. Therefore in a considerable number of our patients we have made periodic determinations of the urinary levels of estrogenic substance and gonadotropic hormone before and during therapy and in certain cases studied vaginal biopsies. Repeated urinary estrogen assays were done in 21 cases. In about three fourths of these cases no estrogen was detected before treatment. In the remaining cases the urinary estrogen excretion in twenty-four hours before treatment was never more than 5 rat units, which in our laboratory represents the lower limit of normal for a menstuating woman. After pellet implantation, however, all cases have shown definite and persistent increase in the urinary estrogen, the average post-treatment level being 10 rat units in twenty-four hours. In about one fourth of the cases the level has been above 15 rat units per liter, which in our laboratory is close to the upper limit of normal for menstruating women. The average observed duration of the estrogen increase in the urine

has been twenty to twenty-four weeks, but in 1 case the elevation persisted for forty weeks.

Urinary follicle stimulating hormone levels have been followed before and during therapy in 35 instances. In 20 the level before treatment was 25 rat units per liter or more while in 15 cases no elevation was detected. Only 50 per cent of those showing a pretreatment elevation of the follicle stimulating hormone showed a persistent absence of follicle stimulating hormone following pellet implantation. However, in the 10 cases in which suppression did occur it was observed to persist for an average period of twenty-one weeks and in 1 case for forty weeks.

As previously reported, vaginal biopsies in 10 patients showed uniform stimulation of the vaginal mucosa appearing within two weeks and persisting as long as twenty-one and a half weeks after pellet therapy.

#### CONCLUSIONS

We believe that the pellet implantation of crystalline estrone is the most effective method yet devised of combating the menopausal syndrome, being satisfactory in 93.4 per cent of our cases.

The implantation of pellets as here described is a very

simple procedure.

The hormone administered by implantation is effective over a longer period of time than when administered by any other method.

Implanted crystalline estrone pellets produced no untoward side effects in contrast to pellets of diethylstilbestrol (or estradiol reported by others).

The treatment was more completely effective in cases in which the symptoms were present for less than a year, which to us suggests the value of early treatment before the neurasthenic tendencies of the patient are developed. There is, of course, the possibility that the symptoms persist for more than a year only in the more severe cases and hence they are more refractory to treatment.

We do not believe that the vaginal smear is an altogether dependable indicator of the necessity of estrogen treatment in the menopause nor is it of any great clinical value as an indicator of the effectiveness of the treatment of the symptoms. Although we feel that laboratory determinations of urinary estrogenic levels and gonadotropic hormone levels are valuable in evaluating a new therapeutic method, such determinations are not necessary in order to carry out satisfactory therapy in the individual patient.

The Basis of Civilization .- Science has thus become the basis of civilization and is the primary factor in promoting its growth. Just as earlier society was based on agriculture and local trade, so modern communities are built on the scientific foundation which makes possible rapid transportation and communication, the preservation and distribution of food and adequate sanitation. With only primitive knowledge of metallurgy, mechanics, electricity, chemistry and hygiene, our cities could not exist, and, with them gone, country life also could have only a primitive form. Science has thus proved its practical strength, and the indications are that the future of mankind lies in the hands of those who guide their actions by carefully acquired scientific knowledge. With science and its correlated industries, there is every reason to anticipate a continuation of the rapid growth and development of civilization, except in those regions and periods where political unrest turns men's attention to less scientific matters,-Compton, Arthur H.: Science, Religion and a Stable Society, Assn. Am. Coll. Bull. 26:206 (May) 1940.

Lipschütz, Alexander, and Vargas, Luis: Lancet 1:1313 (June 10) 1939.
 Nelson, Warren O.: Endocrinology 24:50 (Jan.) 1939.
 Perloff, W. H., and Kurzrok, Raphael: Proc. Soc. Exper. Biol. & Med. 46: 262 (Feb.) 1941.

# RENAL COMPLICATIONS FOLLOWING SULFATHIAZOLE THERAPY

TRAVIS WINSOR, M.D. AND GEORGE E. BURCH, M.D. NEW ORLEANS

Since the introduction of the thiazole derivatives of sulfanilamide by Fosbinder and Walter 1 in 1939, renal complications following the use of sulfathiazole have been observed in the experimental animal and to a limited extent in the treated patient. Only 23 instances have appeared in the literature in which sulfathiazole produced apparent renal damage in the human being: in 21 instances there was hematuria, in 7 there was nitrogen retention, and in 2 sulfathiazole was the probable cause of death.

Garvin 2 treated 54 patients for pneumonia, using 10.0 Gm. of sulfathiazole daily, a dose necessary to maintain a blood sulfathiazole level of 5.8 mg. per hundred cubic centimeters. Of these patients 14.8 per cent had gross or microscopic hematuria. One developed renal colic. Abernethy,3 treating 31 patients with pneumonia, used 40 Gm. of sulfathiazole orally over a period of seven to ten days. One developed hematuria and another showed oliguria and nitrogen retention. Wagoner and Hunting,4 in the management of 55 patients, administered sufficient sulfathiazole to keep the blood level between 4.0 and 6.0 mg. per hundred cubic centimeters for a period of five days. Only 1 patient developed hematuria. Flippin and his co-workers,5 in treating 100 patients with 30 Gm. of sulfathiazole in four days, reported 9 instances of microscopic hematuria. In no patient was nitrogen retention or oliguria noted. Culp 6 treated 30 patients having urinary tract infections, using a large initial dose and 1 Gm. of the drug every six hours thereafter for five to ten days. No oliguria or hematuria was noted. Knoll and Cooper vised 22 Gm. of sulfathiazole in five days while treating a man aged 81 for pneumonia. The blood sulfathiazole level was 6.7 mg. per hundred cubic centimeters. The patient developed gross hematuria, a blood nonprotein nitrogen of 63 mg. per hundred cubic centimeters and oliguria, all of which returned to normal in four days after discontinuation of the drug. No permanent renal damage was apparent. Horack 8 treated a woman aged 77 for pneumonia. Hematuria and a significant rise in the blood urea nitrogen were observed within eighty hours. Following the withdrawal of the drug there was little improvement of renal function, and the patient died on the ninth hospital day. At necropsy the kidneys were pale and swollen. On sec-

tioning, streaks of gritty material could be seen and felt in the region of the medulla. The tubules were dilated and the pyramids were obstructed by large crystalline masses. Lowenberg, Sloane and Chodoff, however, reported that a woman aged 49 was given 52 Gm. of sulfathiazole in ten days without clinical signs of renal damage. The blood sulfathiazole level ranged between 5 and 7.6 mg. per hundred cubic centimeters. At necropsy the bladder, ureters and tubules were packed with crystals. There was no pathologic evidence of parenchymal damage. In this case the presence of crystals in the urinary tract and even crystals in the tubules themselves did not necessarily mean that damage to the kidneys had taken place. Sulfathiazole may or may not have been a factor contributing to the death of the patient.

Many observations conducted on experimental animals to study the nature of the renal damage from this drug showed lesions to be reproducible and frequently irreversible. Rake, van Dyke and Corwin 10 found that 77 per cent of mice ingesting sulfathiazole to the extent of 2 per cent of their diet died within four weeks. At autopsy, crystals were present in the urinary tract from the proximal convoluted tubules to the urethra. Bowman's capsule was dilated and occasionally filled with blood. The renal tubules also were dilated, were filled with crystals and showed definite peritubular leukocytosis and occasionally tubular necrosis. Half of the animals had definite concretions in the pelves or ureters. The damage to the kidneys seemed to the authors to be of two distinct types: 1. There was mechanical blocking of the urinary passage, producing either obstruction to the renal tubules with a resultant tubular hydronephrosis or obstruction to the ureters with a ureteropelvic hydronephrosis. 2. There seemed to be a primary toxic effect on the glomeruli and tubules directly, as shown by hemorrhage into Bownian's capsule and changes in the glomeruli and glomerular basement membrane.11

In rats, in contrast to mice, sulfathiazole is less toxic as far as renal injury is concerned, probably because of the rapid rate of metabolism of sulfathiazole in this animal.10 Sulfathiazole produced renal calculi rarely in monkeys, owing probably to this animal's normal rapid excretion of the drug.10 Climenko, McChesney and Messer 12 showed that the continued oral administration of sulfathiazole to dogs produced mild impairment of renal function. These changes were reversible, returning to normal within forty-eight hours following the withdrawal of the drug. Gross, Cooper and Scott 13 clearly demonstrated tubular blockage following sulfathiazole administration in white rats, using frozen sections and polarized light to visualize the crystals.

The mechanism of the renal damage produced by the sulfonamides varies. Wood 14 reported a case in which sulfanilamide was administered, with development of

From the Department of Medicine, Tulane University School of Medicine, and Charity Hospital of Louisiana at New Orleans.

1. Fosbinder, R. J., and Walter, L. A.: Sulfanilamide Derivatives of Heterocyclic Amines, J. Am. Chem. Soc. 61: 2032-2033, 1939.

2. Garvin, C. F.: Renal Complications Due to Sulfathiazole, J. A. M. A. 116: 300-301 (Jan. 25) 1941.

3. Abernethy, T. J.: The Clinical Use of Sulfathiazole in Pneumonia, M. Ann. District of Columbia 9: 159-164 (May) 1940.

4. Wagoner, S. C., and Hunting, W. F.: Sulfathiazole and Sulfapyridine, J. A. M. A. 116: 267-270 (Jan. 25) 1941.

5. Flippin, H. F.; Rose, S. B.; Schwartz, Louis, and Domm, A. H.: Sulfadiazine and Sulfathiazole in the Treatment of Pneumococcic Pneumonia, Am. J. M. Sc. 201: 585-592 (April) 1941.

6. Culp, O. S.: Sulfathiazole Treatment of Urinary Tract Infections, J. Urol. 44: 116-124 (July) 1940.

7. Knoll, A. F., and Cooper, F. B.: Clinical Urolithiasis Medicamentosa Due to Sulfathiazole, Urol. & Cutan. Rev. 44: 293-294 (May) 1940.

^{8.} Horack, H. M.: Crystalline Concretions in the Renal Tubules Following Sulfathiazole Therapy; Widely Patent Foramen Ovale in an Aged Woman, Arch. Path. 30:645-646 (Aug.) 1940.

^{9.} Lowenberg, S. A.; Sloane, N. G., and Chodoff, Paul: Sulfathiazole Urinary Calculi in the Kidneys, Ureters and Bladder, J. A. M. A. 115: 2069-2071 (Dec. 14) 1940.

10. Rake, Geoffrey: van Dyke, H. B., and Corwin, W. C.: Pathologic Changes Following Prolonged Administration of Sulfathiazole and Sulfapyridine, Am. J. M. Sc. 200; 353-362 (Sept.) 1940.

11. Antopol, William, and Robinson, Harry: Pathologic and Histologic Changes Following Oral Administration of Sulfapyridine, Arch. Path. 29:67-76 (Jan.) 1940.

12. Climenko, D. R.; McChesney, E. W., and Messer, Frederick: Continued Administration of Sulfathiazole on Renal and Hepatic Function in the Dog. Proc. Soc. Exper. Biol. & Med. 46: 124-128 (Jan.) 1941.

13. Gross, Paul; Cooper, F. B., and Scott, R. E.: Urolithiasis Medicamentosa, Urol. & Cutan. Rev. 44: 205-209 (April) 1940.

14. Wood, Harold: A Fatality from Acute Hemolytic Anemia Which Developed During the Administration of Sulfanilamide, South, M. J. 31: 646-648 (June) 1938.

an acute hemolytic anemia and subsequent death in uremia. At autopsy the convoluted and collecting tubules were packed with pigmented casts, which reacted positively to the iron stain. This type of renal damage is similar to that found in blackwater fever.



Fig. 1 (case 1).—Section of kidney in which there is thickening of the glomerular basement membrane. Adjacent to Bowman's capsule is an area of lymphocytic infiltration.

Sulfathiazole has not produced renal damage in this fashion to our knowledge. Antopol 11 pointed out that changes in the renal parenchyma could take place with or without urolith formation in animals receiving sulfapyridine and that the crystal formation in the tubules may either precede or follow tubular damage. That the drug is irritating in itself is shown by the acute gastritis which follows oral administration and the hemorrhagic reaction in the bowel which follows rectal instillation. Histologic changes were produced with sulfathiazole in the kidneys of the monkey which were similar to those found in man. In many of the animal experiments much larger doses than those used for therapeutic purposes in man were administered. 15

In view of the relatively few reported instances of renal damage by sulfathiazole in man, the indiscriminate use of the drug by many, and the possibility that most patients who receive the drug are not properly studied for evidences of renal changes, it was considered warranted to report 6 cases from Charity Hospital in which renal injury developed following the administration of sulfathiazole.

#### REPORT OF CASES

For brevity these cases are condensed, only the data relating to discussions in the paper being presented.

CASE 1.—E. P., a Negro woman aged 37, married, a laundress, entered Charity Hospital on Sept. 19, 1941 complaining of chest pain of five days' duration. She died on September 25.

She presented a typical clinical picture of acute pericarditis and left fibrinous pleuritis with nausea and vomiting of five days' duration and a history of limited intake of fluids and food. The liver was moderately enlarged and soft, and the right kidney was large and movable. There was no ascites or edema. Ten days prior to admission she had a perirectal abscess drained.

There was moderate anemia and leukocytosis. The urine had a specific gravity of 1.014, 4 plus albumin and no erythrocytes.

Five hours after her admission on September 19, 3 Gm. of sulfathiazole was administered by mouth. In the following two days she received 6 Gm. of sulfathiazole orally each day. On September 22 she was given three doses of 40 cc. of 5 per cent sulfathiazole intravenously. Each day on which sulfathiazole was given, 2,000 cc. of intravenous fluids was administered in addition to that drunk. On September 22 the drug was stopped because of oliguria and the presence of red cells and sulfathiazole crystals in the urine. In three days she had received a total of 21 Gm. of the drug, 6 Gm. of which was given intravenously. Repeated urine examinations revealed a specific gravity of 1.014, 4 plus albumin and 10 to 15 erythrocytes per high power field. No casts were reported. On September 21 the blood urea nitrogen rose to 101 mg. per hundred cubic centimeters, the blood sulfathiazole was 21 mg. per hundred cubic centimeters and the carbon dioxide combining power was 22 volumes per cent. By September 25 her fluid output was only 5 cc. On this day her temperature rose to 102 F., the pulse rate was 180 per minute, the respiratory rate was 45 per minute and the patient died.

On postmortem examination, the pericardial cavity contained 20 cc. of purulent fluid, and shaggy fibrinous adhesions were present between the visceral and the parietal pericardium. The left pleural space contained 100 cc. of purulent exudate. The kidneys were enlarged, the right weighing 390 Gm. and the left 280 Gm. They were smooth, swollen and pale and showed no hemorrhage or crystals. The pelves and ureters were not dilated. The bladder showed numerous submucosal hemorrhagic areas in the region of the trigone.

On microscopic examination ¹⁶ the kidney capsule was thin. The glomeruli were slightly decreased in size, appeared somewhat acellular and showed considerable thickening of the basement membranes. The glomerular spaces were dilated and contained a moderate amount of eosinophilic granular material. A few hyalinized glomeruli were noted in the cortex. The tubules were all dilated, and many contained an eosinophilic granular amorphous material. This was most pronounced in



Fig. 2 (case 1).—Section of kidney in which the tubules are dilated. An area of leukocytic infiltration and hemorrhage is seen. The tubular epithelium is flattened. There is some interstitial edema and fibrosis.

the convoluted tubules, which were lined by a flattened type of epithelium. There was an increase in the interstitial fibrous tissue associated with slight edema. There was a diffuse lymphocytic infiltration throughout the cortex (figs. 1 and 2).

On the first examination, no mass in the right upper quadrant was found. This was detected only after sulfathiazole was started and gave the examiners the impression that it was a right kidney that had become enlarged and that the sulfathiazole was responsible for this acute enlargement. Because of the acuteness and severity of the patient's illness, sulfathiazole was administered as described without the state of renal function having been previously determined. After having received 18 Gm. of sulfathiazole in three days, she was found to have a blood sulfathiazole level of 21 mg. per hundred cubic centimeters, oliguria (as little as 5 cc. a day) and a retention of nonnitrogenous products. The patient died shortly thereafter. Since no previous renal function studies were made, it is impossible to be certain that there was no antecedent renal damage. The history suggested the absence of any chronic renal disease. It was thought that, even though the sulfathiazole may not have been responsible for the

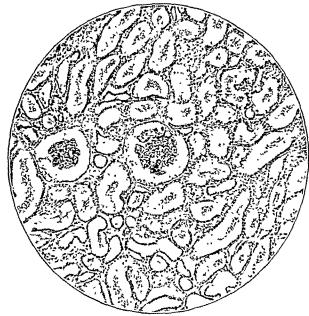


Fig. 3 (case 2).—Section of kidney in which the tubules and Bowman's space are dilated and an eosinophilic granular material is in their lumens. The free borders of the tubular epithelium are frajed and ragged. There is some thickening of the glomerular basement membrane.

primary renal damage, it probably produced the final oliguria and uremia.

At necropsy, no evidence of uremic pericarditis was seen. Frozen sections of the pericardium and myocardium were made, as it was felt that crystal formation in the heart muscle or pericardium itself could be a factor contributing to the pericarditis. No crystals were found. Frozen sections of the kidneys, however, showed the presence of crystals which completely filled and obstructed the renal tubules. Paraffin section of these organs stained with hematoxylin and eosin revealed no crystal formation. The tubules were dilated and showed signs of tubular degeneration and other signs of sulfathiazole damage.¹¹

Several facts may be learned from this case: 1. Before giving sulfathiazole, one must be sure that the patient has not already taken the drug without the knowledge of the doctor. The high blood level of sulfathiazole may have been due to use of the drug before admission to the medical wards. If in doubt, a blood sulfathiazole determination should be made before the drug is administered. 2. Renal function tests should

be done to learn the state of renal function before sulfathiazole is administered. 3. Sulfathiazole should probably not be given to a patient who is dehydrated or to one with severe renal damage. 4. Fluids should be forced while the drug is being administered, and oliguria, hematuria, a unilateral enlarging kidney or impaired renal function (determined by frequent urinalyses and renal function studies) should be indications to stop the drug. 5. Tissues should be studied by frozen section if crystals are to be found.

Case 2.—A. A., a Negro woman aged 36, married, a house-wife, was admitted to Charity Hospital on July 29, 1941 and died on August 2. Two weeks prior to admission to the surgical service an acute right salpingitis developed which had resulted in a pelvic abscess and diffuse peritonitis by the time of admission.

There were leukocytosis, increased sedimentation rate, a trace of albumin and many casts in the urine. An exploratory laparotomy was performed and the diagnosis confirmed.

On return to the ward the patient was given 5 Gm. of sodium sulfathiazole in 1,000 cc. of saline solution by the intravenous route. The following day the same total dose was repeated in divided amounts along with the intravenous administration of fluids. No sodium bicarbonate was administered. On Aug. 1, 1941, a catheterized specimen of urine was grossly bloody. The nonprotein nitrogen was 38 mg. per hundred cubic centimeters and the carbon dioxide combining power was 30 volumes per cent. She developed oliguria, abdominal distention, a temperature of 103 F. and signs of pulmonary edema. The latter was treated by sedation, philebotomy, tracheal aspiration and 50 per cent dextrose solution intravenously. The patient died. August 2, with acute respiratory distress.

On postmortem examination the peritoneal cavity showed signs of diffuse peritonitis. The kidneys were pale, tense and swollen. The right kidney weighed 200 Gm. and the left 240 Gm. Sectioning produced a gritty sensation. The cut surfaces were pale and felt sandy and rough. The calices and pelves of both kidneys contained pale yellow, gritty crystals, which tended to clump together. The left ureter was dilated and congested, and its lumen contained a plug of crystals which completely blocked the ureter at the trigone of the bladder.

Microscopically the kidneys showed considerable distention of the capsular spaces with small glomerular tufts. Within these spaces there was noted much eosinophilic granular material. There was slight thickening of the basement membrane with no proliferation of the endothelium. The tubules were generally greatly dilated, especially in the cortical area. The cells lining the tubules were flattened and more atrophic than normal. The convoluted tubules showed considerable cosinophilic granular material. This was also found in the collecting tubules, but in minimal quantities. There was very slight interstitial edema. Occasionally small groups of lymphocytes were seen between the convoluted tubules. The capillaries were congested, and an occasional intertubular hemorrhage from these vessels was noted (fig. 3).

The patient showed signs of renal damage after the intravenous administration of 10 Gm. of sodium sulfathiazole in forty-eight hours. The hematuria, oliguria, azotemia and acidosis all pointed to renal involvement. Poor renal excretion may have been due to renal irritation from the massive peritonitis, to shock secondary to the infection as well as to the operation itself, and to dehydration due to fever, vomiting, catharsis and lack of administration of sufficient amounts of fluid. The delayed excretion as well as the intravenous administration of the drug would all tend to produce a high blood sulfathiazole level and a subsequent hyperacetylation of sulfathiazole in the liver and other organs of the body. Sunderman, Pepper and Benditt is have shown that the acetyl derivative of sulfathiazole is only one tenth as soluble in urine as is the free form of the

drug and that both are half as soluble in urine of  $p_{\rm H}$  5.6 as in urine of  $p_{\rm H}$  7.6. Recently observations by Curtis and Sobin ¹⁷ corroborated this. Schwartz, Flippin, Reinhold and Domm,18 on the other hand, found that alkalization decreased the tendency toward urolith formation but little. Administration of sodium bicarbonate to this patient during sulfathiazole therapy probably would have lessened crystal formation in the kidney and ureteropelvis, especially since she showed a low blood carbon dioxide combining power. Necropsy showed renal damage which was comparable to that described by Antopol.²² The left hydronephrosis with urolith formation illustrates the mechanical damage to this patient. Although crystals were seen and felt grossly at the autopsy table in these kidneys, routine paraffin sections did not reveal their presence as they were dissolved out while the sections were being prepared. Frozen sections were not made. Sadusk, Waters and Wilson 10 described 2 cases similar to this with calculi blocking the ureterovesicular orifice, with tubular dilatation and vacuolization and congestion of the glomerular tufts following the administration of sulfapyridine.

CASE 3.-C. G., a Negro woman aged 47, married, a housewife, entered Charity Hospital on Sept. 29, 1941 complaining of fever of three weeks' duration. She died on November 2.

On September 5 the patient contracted an infection of the upper respiratory tract which progressively descended, resulting in bronchopneumonia and right and left ventricular congestive heart failure. The physical findings supported the diagnosis.

The blood and urine examinations were normal. There was no gross or microscopic hematuria. Laboratory studies revealed a phenolsulfonphthalein excretion of 70 per cent in one hour, an antecubital venous pressure of 26 cm of water, a decholin circulation time from arm to tongue of fifty seconds and an ether circulation time from arm to lung of ten seconds.

During the first thirteen days of hospitalization she received 62 Gm of sulfathiazole by mouth. No sodium bicarbonate was given On October 13 she complained of bilateral lumbar pain and an inability to urinate for the preceding sixteen hours. Urethral catheterization recovered a few drops of grossly bloody urine which was packed with sulfathiazole crystals. The blood pressure was 150 systolic and 90 diastolic. The blood sulfathiazole was 8 mg, per hundred cubic centimeters. Ureteral catheterization was done immediately, and when the catheters were passed a gritty sensation suggested the presence of numerous sulfathiazole crystals There was no excretion of indigo carmine from either catheter in twenty minutes. The patient returned to the ward with a blood pressure of 82 systolic and 48 diastolic. In the first forty-eight hours the fluid intake was 8,500 cc. and the output was 780 cc. In the following ten days she received daily 4,000 cc. of fluids, 50 cc. of 50 per cent dextrose solution, 24 Gm. of sodium bicarbonate and 11/2 grains (01 Gm) of digitalis. During this time the ureteral catheters were irrigated every two hours with warm isotonic solution of sodium chloride. In the twelve days following her hematuria the erythrocytes and sulfathiazole crystals disappeared from the urine and the blood urea nitrogen rose from 10 to 60 mg per hundred cubic centimeters. The patient was doing fairly well when she unexpectedly died on November 2, just twenty-one days after the onset of the hematuria.

At autopsy, the right kidney weighed 210 Gm and the left kidney 200 Gm. The capsules stripped with case, revealing a fairly smooth purple surface which showed an occasional granular area in the region of the medulla. The cortex mea-

sured 0.7 cm. in thickness. The line of demarcation between the cortex and the medulla was distinct. The calices and pelves showed no abnormalities.

Microscopically the kidneys showed occasionally small scars just beneath the capsule, within which were a few atrophic tubules and occasional lymphocytes, plasma cells and large mononuclear cells. The glomeruli varied in size, most of them appearing smaller than normal. There was no proliferation of the endothelial or capsular cells, but the basement membranes were slightly thickened Here and there the afferent arterioles showed thickening and hyalinization. There was moderate distention generally of the glomerular spaces, which contained in most instances an eosinophilic granular material. Moderate distention of the tubules, especially in the cortex, was noted. Many of the cells lining the convoluted tubules showed fraying of the free borders and albuminous degeneration These tubules contained within their lumens an eosinophilic, granular amorphous material. Occasionally degenerating cells were noted in the lumens. A similar precipitate was present in the collecting tubules and some of Henle's loops but was not as well defined as in the proximal and distal convoluted tubules. There was

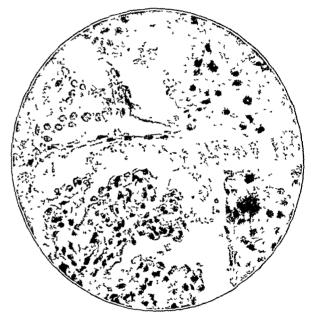


Fig 4 (case 3)—Section of kidnes in which Bowman's space contains an eosinophilic granular material. There is some thickening of the glomerular basement membrane

not much separation of the tubules by interstitial edema. An occasional small focal area of lymphocytes and polymorphonuclear leukocytes could be seen in the peritubular tissues. This, however, was not constant (fig. 4).

The patient received 62 Gm. of sulfathiazole orally in twelve days, at which time backache heralded the onset of renal complications. Anuria quickly followed. The granular sensation felt while the ureteral catheters were being passed gave evidence of the presence of crystals in the ureters, and examination of the urine revealed typical crystals of acetyl sulfathiazole. If one assumes that the catheters were patulous, the inability of the kidney to excrete urine or indigo carmine through these catheters indicates a damage or block within the kidney itself and not in the extrarenal passages. Peterson and Finland 20 reported a case in which crystals formed in the ureteral catheters during catheterization, causing complete obstruction to the urine outflow. When intrarenal obstruction or damage has taken place, ureteral catheterization and irrigation of the ureters

¹⁷ Curtis. A C. and Sobin, S. S. The Solubility of Acetylsulfa pyridine and Acetylsulfathiazole in the Urine, Ann. Int. Med. 15:884. 889 (No.) 1941.

18 Schwartz, Louis, Flippin, H. F.; Reinhold, J. G., and Domin, A H.. The Effect of Alkali on Crystalluria from Sulfathiazole and Sulfadirance, J. A M. A. 117:514 515 (Aug. 16) 1941.

19 Siduck, J. F.; Waters, Levin, and Wilson, Dwight: The Treat ment of Anuria Dine to Sulfapyridine Calcul, J. A. M. A. 115:1968 1973 (Dec. 7) 1940.

²⁰ Peterson, O. L., and Finland, Maxwell. The Urinary Tract in Sulfonamide Theraps, Am. J. M. Sc. 202: 757-759 (Nov.) 1941.

and pelves cannot be expected to relieve the anuric patient. Such a procedure will, however, clear the extrarenal passages and will allow free flow of urine when diuresis begins. Carroll, Shea and Pike 21 have shown that sulfathiazole crystals dissolve best in distilled water at 107 F. Warm distilled water would probably have been superior to the warm physiologic solution of sodium chloride used in this patient Dourmashkin and Worton 22 stated, in regard to sulfapyridine urolithiasis, that timely ureteral catheterization may be life saving. This is true only if there is little intratenal obstruction and not when intrarenal blockage is primary. The latter must be treated by forcing fluids. sodium bicarbonate and diuretics

At necropsy the kidneys of this patient were not pale, swollen or filled with sulfathiazole crystals as were the kidneys of the previous patient, who showed evidence of acute sulfathiazole injury. Instead, these kidneys were those of subacute damage in which injury had been inflicted more than twenty-one days previous to her death. It is possible that during these twenty-one days any crystals that may have been present were dissolved and excreted.

CASE 4-E B, a Negro woman aged 32, married, a housewife, entered Charity Hospital on Sept 22, 1941 complaining of a cough of fourteen days' duration She was discharged on October 22.

On September 8 she noted a dry cough, headache, slight fever and pain in the chest, which were followed by definite clinical evidence of lobar pneumonia

There were moderate anemia and leukocytosis had a specific gravity of 1014, 2 plus albumin and occasional pus cells and erythrocytes

On September 22 sulfathiazole was started by giving 2 Gm immediately, 2 Gm in four hours and 1 Gm every four hours orally thereafter No sodium bicarbonate was given. A soft, neutral diet was supplied. On September 25, after receiving 16 Gm of the drug, she complained of a constant, dull, bilateral backache and an mability to urmate for twelve hours cc of bloody urine loaded with sulfathiazole crystals was obtained by urethral catheterization. The flat plate of the abdomen at this time showed no evidence of radiopaque urinary calculi Ureteral catheters were passed and a gritty sensation was noted as the catheters were guided into the pelves of the kidneys Five cc of bloody, granular urine was drained from The pelves were irrigated with warm isotonic each pelvis solution of sodium chloride until no more crystals were obtained. Intravenous indigo carmine appeared in weak concentration in both catheters at the end of thirty minutes. The blood urea nitrogen was 28 mg per hundred cubic centimeters, the carbon dioxide combining power 58 volumes per cent and the blood sulfathiazole 107 mg per hundred cubic centimeters patient was treated with 3,500 cc. of fluid daily, an alkaline-ash diet, 40 Gm of sodium bicarbonate daily and irrigation through the ureteral catheters every two hours for seven days September 26 the urine output was only 25 cc The output during the next sour days was 470, 410, 835 and 2,025 cc respectively. By the time of her discharge on October 20 there were no erythrocytes in the urine. The urea clearance was 100 per cent and the phenolsulfonphthalein excretion 70 per cent in the first hour and 5 per cent in the second. The blood urea nitrogen was 8 mg per hundred cubic centimeters

The course in this case resembled that of the previous one in that headache, intrarenal suppression of urine, hematuria, crystalluria and azotemia developed after

the oral administration of the drug. In contrast to the previous patient, however, she received only 16 Gm of the drug in three days. The blood sulfathiazole level was not excessive Following alkalization, ureteral catheterization and diuresis, recovery took place in five The criteria for recovery used in this case was the absence of hematuria, a return to a normal urine output and the existence of normal renal function. The problem of the administration of sulfathiazole to a patient with evidence of a preexisting renal lesion is presented by this patient Before sulfathiazole was given a routine urine examination showed 2 plus albumin and an occasional erythrocyte. This may have been secondary to her pneumonia, as she had no history or other signs of nephritis. Sadusk, Blake and Seymour 23 stated that persons with heart failure or renal damage retained the drug with a subsequent high blood level and a high degree of acetylation which was probably the result of continuous recirculation through the It would seem then that any condition which would increase the acetylation and hence augment the insolubility of sulfathiazole would be a contraindication to the use of the drug The renal function was not sufficiently impaired, even if there was previous renal disease, to produce an accumulation of sulfathiazole m the blood, as the blood level was only 107 mg. per hundred cubic centimeters. On discharge the patient showed no evidence of impairment of renal function. The urea clearance test, blood urea nitrogen level and phenolsulfonphthalem excretion tests were within normal range. Before catheterization the patient showed negative roentgenograms of the kidney regions. A few moments later, however, a gritty sensation was felt as the ureteral catheters were guided into place. These crystals were not roentgenographically visible. Uroliths of sulfathiazole are invisible unless infiltrated with calcium, in which case they can be seen by x-ray examination. This patient illustrates the success that usually follows treatment of the renal damage

Case 5-R B, a white man aged 54, married, entered Charity Hospital on Sept 6, 1941 with the complaint of inability to urinate of thirty-six hours' duration. He was discharged on September 24

Fourteen days previous to entrance he developed a cough, sore throat and general malaise, which was accompanied by painted joints, chills and fever His symptoms continued for ten days, at which time he received 8 Gm of sulfathiazole over a period of forty-eight hours. This was unaccompanied by sodium bicarbonate After the first dose of the drug he became museated, and during the course of the treatment he vomited frequently For two days prior to entrance he noted a gradual diminution of his urmary output, and for the thirty-six hours previous to entry he had passed no urine. At no time had he noted dysuria, hematuria or backache

Physical examination failed to show any abnormalities except a temperature of 102 F There were mild anemia and no leukocytosis The nonprotein nitrogen was 86 mg per hundred cubic centimeters and the carbon dioxide combining power was 29 volumes per cent A blood sulfathiazole value was not No urine was obtained by ureteral catheterization reported X-ray examination of the kidney showed no evidence of calculi formation

On September 6 cystoscopy was done and a ureteral catheter was passed into the left kidney pelvis. Two cc of cloud) urine was obtained, which contained many epithelial cells, ro crystals and no red cells. There was no further excretion of

²¹ Curroll, Gravson, Shea, John, and Pike, George Complete Anuria Due to Crystalline Concretions Following the Use of Sulfapyridine in Pneumonia, J A M A 114: 411-412 (Feb 3) 1940

22 Dourmaskkin, R L., and Worton, Morris Anuria Due to Complete Blateral Ureteral Impaction with Concretions Following the Use of Sulfapyridine in Pneumonia, New York State J Med 41: 146-149 (Jun 15) 1941

²³ Sadusk, J. P., Blale, F. G. and Sermour, Anne. Observations the Absorption, Excretion, Diffusion and Acetylation of Sulfation for Man, Vale J. Biol. & Med. 12:631 696 (July) 1949.

urine in thirty minutes. The catheter could not be passed into the right pelvis. The patient was returned to the ward with the catheter in place. For the following seven days he was given large doses of 50 per cent dextrose, theophylline with ethylenediamine and fluids intravenously, caffeine with sodium benzoate intramuscularly and sodium bicarbonate and digitalis orally. The ureteral catheter was irrigated frequently with warm isotonic solution of sodium chloride. The catheter was removed on September 13, at which time the blood sulfathiazole was 1.0 mg, per hundred cubic centimeters. The blood urea nitrogen was 39 mg. per hundred cubic centimeters and the urine flow adequate. On September 19 the blood urea nitrogen was 22 mg. per hundred cubic centimeters and the phenolsulfonphthalein excretion was 30 per cent in the first hour and 20 per cent in the second hour. On September 24, the day of his discharge, the excretion was 25 per cent and 17 per cent in the first and second hours respectively.

The patient received only 8 Gm. of sulfathiazole in two days, after which he was anuric for thirty-six hours. His blood urea nitrogen was high and he was clinically uremic. Following ureteral catheterization only a few drops of urine could be obtained from the left kidney pelvis. It is remarkable that no erythrocytes or crystals were found in the urine, and at no time was gross or microscopic hematuria seen. An intensive regimen of diuresis was instigated, and the patient was discharged in fifteen days with evidence of moderate renal impairment. In view of the small dosage received, the symptoms might be due to overdosage, idiosyncrasy, sensitivity or hyperacetylation of the drug. In general, symptoms of overdosage are certain, reproducible and reversible; they can be produced in the experimental animal, and the severity of the reactions is dependent upon the dosage of the drug employed.24 The dose employed in this case is certainly not excessive for the average patient. Symptoms due to idiosyncrasy are uncertain, are variable, have little relation to dosage and have no counterpart in the experimental animal.24 Symptoms due to sensitivity are characterized by a previous history of contact, a period of incubation and an altered and accelerated response. The patient had not taken sulfathiazole previously. Although it is generally conceded that the sulfonamides produce no allergic antibodies such as precipitins and that the scratch, intradermal and passive transfer tests are generally negative, there are, however, at least a dozen reports in the literature which seem to indicate an allergic reaction to the sulfonamides in persons who have been previously sensitized to these drugs.25

CASE 6.-B. G., a Negro aged 35, married, a longshoreman, entered Charity Hospital on Feb. 10, 1941 complaining of cough and chest pain of four days' duration. He was discharged on

Four days before admission the patient contracted an infection of the upper respiratory tract. On admission his temperature was 100 F. and there were coarse, dry rales in the lungs. The blood and urine were normal.

On February 11, sulfathiazole was started orally without sodium bicarbonate. Nine Gm. of the drug was given in thirtytwo hours. The patient became nauseated. A voided urine sample was grossly bloody. Numerous needle shaped crystals were seen microscopically. Fluids were forced and sodium bicarbonate was given. By the seventh day of treatment, no more crythrocytes could be found in the urine. He was discharged on February 21.

This case superficially resembled case 5 in that a small dose of sulfathiazole was administered to a comparatively young person whose urinary findings were normal previous to the administration of the drug. The presenting symptom was hematuria; oliguria did not occur. The urine was loaded with the typical dumbbell shaped rosettes and large orthorhombic and hemimorphic crystals, which are described in detail by Sunderman, Pepper and Benditt.15 Many patients receiving sulfathiazole have crystals in the urine and yet show no sign of renal damage. Schwartz and his collaborators 18 have shown that of 100 patients receiving sulfathiazole, half having alkaline and half acid urine, 28 per cent of the former and 70 per cent of the latter had crystalluria. The mere presence of crystals in the urine is not an indication to stop the drug. The patient responded to the simplest kind of treatment. Probably only extrarenal irritation, which cleared readily with the withdrawal of the drug, had taken place.

### COMMENT

The 6 cases reported illustrate some of the renal problems encountered from the therapeutic use of sulfathiazole. Such renal injury has been noted more for sulfapyridine than for sulfathiazole.20 This is most probably due to the fact that the latter drug has been used for only a relatively short time. It is too early to evaluate the status of sulfadiazine and sulfaguanidine as far as renal damage is concerned. Sulfanilamide appears to be much less likely to injure the kidneys seriously.20 These individual differences among the sulfonamides can be explained in part, at least, by their known chemical and pharmacologic behavior. Sulfathiazole is rapidly and irregularly absorbed from the gastrointestinal tract, it produces variable blood levels, acetylation is limited, it is excreted rapidly in the urine, and its reabsorption from the tubules is poor because of its relative insolubility in urine. Sadusk, Blake and Seymour 23 showed that the rate of absorption in a normal adult male following a single oral dose of 4.2 Gm. (0.06 Gm. per kilogram) reached its peak of 9 mg. per hundred cubic centimeters in the blood three hours after ingestion. They also pointed out that the kidneys at autopsy contained more sulfathiazole than did the other organs of the body. In six hours the blood sulfathiazole level had fallen considerably. Forty per cent of the drug was excreted in the urine in six hours, and 70 to 80 per cent was excreted in twentyfour hours. In cases of pneumococcic pneumonia a single dose of 4 Gm. of sulfathiazole raised the blood sulfathiazole level to 4.9 mg. per hundred cubic centimeters within four hours. This ready absorbability of the drug was comparable to that found with sulfanilamide. When 32 patients without either heart disease or nephritis were treated with an initial oral dose of 4 Gm. of sulfathiazole and subsequent doses of 1 Gm. every four hours, the blood sulfathiazole level varied between 2 and 12 mg. per hundred cubic centimeters.23 This variability of blood sulfathiazole was somewhat less by the tenth day. The rapid absorption of the drug in human beings makes it necessary to start with an initial dose of about 4 Gm. and to administer the drug at intervals of four hours day and night. With its variability of absorption, even in the presence of a normal excretory rate, it is necessary to examine the blood sulfathiazole level at regular intervals in order to control properly the progress of the patient. Carroll,

^{24.} Cutting, W. C., and Cover, W. L.: Summary of Pharmacology of Sulfanilamide and Related Compounds, California & West. Med. 52: 110-113 (March) 1940.

25. Shavin, S. J.: Complications from Sulfanilamide and Its Related Compounds, Tri-State M. J. 12: 2490-2495 (May) 1940.

Kappel and Lewis 26 have stressed the value of blood sulfathiazole levels in controlling the pharmacologic and toxic effects of the drug. They feel that a blood sulfathiazole level of 5.0 mg. per hundred cubic centimeters is both safe and effective. This was demonstrated by a study of 200 benefited patients who showed no hematuria or oliguria. Wagoner and Hunting 4 found sulfathiazole and sulfapyridine equally effective when administered to pneumonia patients for five days, keeping the blood sulfathiazole level between 4 and 6 mg. per hundred cubic centimeters. Rammelkamp and Stoneburner 27 concluded from their experiments in vivo and in vitro that 2 to 4 Gm. of sulfathiazole daily was sufficient to sterilize the urine of patients with mild urinary tract infection. Such a small dose as this may be highly desirable in treating patients with renal infection with a drug which itself may cause renal damage. Culp 6 felt that large doses of sulfathiazole predisposed to renal complications. Carroll, Kappel and Lewis,26 however, described a case in which 14 Gm, of sulfathiazole was administered daily without harmful effects. Oral doses of approximately 0.06 Gm. per kilogram have been used effectively against types I, II and III pneumococcus, beta Streptococcus hemolyticus group A, gonococcus and Staphylococcus aureus.

Sodium sulfathiazole in contrast to sulfathiazole is poorly absorbed from the gastrointestinal tract and rectum. Strauss, Lowell, Taylor and Finland 28 showed that, when sodium sulfathiazole was administered intravenously, a high blood level was attained as compared with the sodium salts of the other sulfonamides. The drug was excreted rapidly and almost quantitatively. Both sulfathiazole and its sodium salt were reabsorbed

poorly by the renal tubules.

The degree of acetylation, which probably takes place to some extent in the liver, would seem to have some bearing on urolith formation for the acetyl form is highly insoluble. Sadusk, Blake and Seymour 23 have shown that the degree of acetylation of sulfathiazole is comparatively slight and variable. It ranges from 0 to 30 per cent, the median being 12 per cent. In patients with congestive heart failure and renal damage the blood sulfathiazole level following average doses may rise to 15.9 mg. per hundred cubic centimeters by the fourth day with a high degree of acetylation. This has been said to be due to the prolonged recirculation of the drug through the liver.

DIAGNOSIS

The diagnosis of renal damage is not difficult, especially if the patient has been properly studied and an inventory of the renal state has been taken before sulfathiazole was administered. The appearance of hematuria, oliguria, backache, tenderness over one or both kidney areas, decreased renal function, azotemia and progressive nephromegaly in a patient who has received sulfathiazole should make one suspect renal damage from the drug. Rarely do all the findings exist at the same time. Cystoscopic study will usually establish the diagnosis. Sulfathiazole crystals in the urine

may aid in establishing the diagnosis, but their presence alone does not mean renal damage. X-ray study will usually not reveal uroliths unless there is calcification, which is rare. It should be remembered that renal damage can occur in the presence of a low blood level of sulfathiazole and also after only a small amount of the drug has been administered.

### PREVENTION

Because of the tendency of sulfathiazole to injure the kidneys, it is necessary to employ the drug cautiously. On administration of the drug, it is advisable to follow certain rules:

- 1. Determine whether or not the patient has had any sulfonamide medication before. If the history is not reliable, it is advisable to determine the blood level and prescribe accordingly. This will tend to prevent overdosage and reduce the likelihood of injuring the kidneys.
- 2. Evaluate the state of the patient's renal function and the nature of the urine being excreted before administering the drug. In the presence of impaired renal function there is a greater chance for overdosage and renal damage. Furthermore, infectious states for which the drug is used will in themselves produce renal changes with casts, erythrocytes and albumin in the urine. It is therefore necessary to know whether or not findings in the urine following the use of sulfathiazole are due to the drug or to previously existing infection. In the presence of serious renal damage proceed carefully with the drug, check the urine frequently and determine the blood sulfathiazole level Should hematuria develop or renal function often. definitely decline, stop the drug immediately. Do not allow the blood levels of the drug to increase above accepted therapeutic values. In some instances it might be well to determine the blood levels of urea nitrogen or total nonprotein nitrogen before giving sulfathiazole to patients who have some evidences of impaired renal function determined by urea clearances, concentration tests and the like. Such determinations will aid in supporting other findings in the future, especially if renal complications are suspected. Palpate for the kidneys before and during the use of the drug. As shown in the first case, the kidneys may become palpable once renal injury has occurred.
- 3. The hydration of the patient should be evaluated A severely dehydrated patient will take in a great deal of fluid and excrete but little and therefore will be more likely to experience renal damage. Chart the fluid intake and output and make sure that the urine output is of good volume before and during the use of the drug. Curtis and Sobin 17 have shown that 2,000 cc. of urine output daily are necessary to prevent the formation of acetyl sulfapyridine crystals in acid urine of low specific gravity for a 2 Gm. daily intake and that 6,000 cc. is necessary for a 6 Gm. daily intake. On the other hand, with an alkaline urine 1,250 cc. and 3,750 cc. of urine output daily would be necessary for doses of 2 and 6 Gm. daily intake respectively. Once oliguria develops in spite of a large fluid intake, the drug should be stopped.
- 4. There is some disagreement among observers as to the influence of the pu of the urine on the incidence of renal damage, as we have shown. Since some believe that an alkaline urine tends to reduce crystal forma-

^{26.} Carroll, Grayson; Kappel, Louis, and Lewis, Bransford: Sulfathiazole: A Report on Clinical Investigations, J. A. M. A. 115: 1350-1352 (Oct. 19) 1940.

27. Rammelkamp, C. H., and Stoneburner, L. T.: Sulfathiazole: A Clinical and In Vitro Study of Its Infections of the Urinary Tract, New England J. Med. 224: 45-52 (Jan. 9) 1941.

28. Strauss, Elias: Lowell, F. C.: Taylor, F. H. L., and Finland, Navuell: Observations on the Absorption, Excretion and Distribution of Sulfanilamide, Sulfanyridine, Sulfathiazole and Sulfamethylthiazole, Ann. Int. Med. 14: 1360-1382 (Feb.) 1941.

tion,²⁹ and if the use of alkalis and an alkaline urine are not contraindicated in a particular case, it would be well to administer alkalis and maintain an alkaline urine.

5. There is some evidence to indicate the development of hypersensitivity to the sulfonamides. It is well, therefore, to be extremely cautious and particularly vigilant in the treatment of patients who already suffer from a form of allergy. Patients who have recently received a sulfonamide drug may have been sensitized to such drugs and will react allergically if given another course of one of them. It is better, if there is no need for haste, to give these two types of patients about If Gm. of the drug by mouth and wait twelve hours. If no unfavorable reactions result, proceed with the treatment. Such a procedure should also be employed, if possible, in all cases so as to eliminate unpredictable severe reactions that occur because of idiosyncrasy to sulfonamides.

#### TREATMENT

The drug should be stopped immediately, once the slightest evidence of kidney damage is discovered. Fluids should be administered in large quantities, as described. Ureteral catheterization should be done promptly and the catheter should be allowed to remain in place until a normal volume of urine flow is reestablished. The pelves should be irrigated at two hour intervals with warm (107 F.) distilled water. This procedure is effectual in relieving extrarenal obstruction; an intense diuretic regimen is necessary to relieve intratubular renal obstruction.

The diunetics should be large quantities of fluid and, if necessary, hypertonic solutions of dextrose. Avoid, if possible, the use of magnesium sulfate, as it has been suggested by some that it predisposes to the formation of sulfihemoglobin; but it may be used intravenously if there is no cyanosis and if the oliguria persists after other measures for diuresis have failed. Mercury and acid diuretics should not be used. The patient should be placed on an alkaline ash diet and the urine kept alkaline with the use of sodium bicarbonate.¹⁷ The protein intake should be restricted for four or five days or during the period of severe oliguria, hematuria and azotemia. Fluids should be administered in large quantities for many days after the kidneys have returned to normal.

These patients should be followed and carefully studied from time to time to make sure that there is no residual or latent damage which may become manifest as a chronic disease later. It is not known how complete and permanent the recovery is.

### CONCLUSION

To reduce the incidence of renal damage, certain rules should be followed:

- (a) Check previous sulfonamide medication in order to prevent overdosage.
- (b) Evaluate the state of the renal function before the drug is administered and proceed accordingly.
- (c) Evaluate the state of hydration of the patient in order to insure a large volume of urine.
- (d) It is preferable to maintain an alkaline urine during the administration of sulfathiazole.

29. Sunderman, Pepper and Bendutt.¹³ Curtis and Sohin ¹⁷ 30. Davidson, Arnold, and Bullowa, J. G.: Acquired Hypersensitivity to Sulfapyridine and Sulfamethylthiazole, New England J. Med 223: 811-813 (Nov. 14) 1940 Sules, M. H.: Hypersensitivity to Small Doseo of Sulfathiazole, Pennsylvania M. J. 44: 823-824 (April) 1941. Shavin ²

(e) Guard against allergy, hypersensitivity and idio-

Progressive oliguria, impairment of renal function, azotemia, hematuria, backache or nephromegaly should be indications for discontinuing the drug. The presence of crystalluria alone is no such indication.

Treatment consists of alkalization, diuresis and ureteral catheterization and irrigations with warm (107 F.) distilled water.

### PERIPHERAL ARTERIOSCLEROSIS IN THE DIABETIC AND THE NONDIABETIC

A STUDY OF ONE HUNDRED AND SIX

AMPUTATED LEGS

JAMES R. LISA, M.D.
MORTON MAGIDAY, M.D.
AND
JAMES FINLAY HART, M.D.
NEW YORK

It has been repeatedly stated that peripheral arteriosclerosis occurring in diabetic patients differs from that of the nondiabetic. This has aroused considerable controversy and has given rise to many differences of opinion. In view of this we have compared the vascular system in the amputated legs of the diabetic and the nondiabetic patients operated on at the New York City Hospital, Welfare Island, between Jan. 1, 1930 and Dec. 31, 1940. Our findings indicate that the type of arteriosclerosis is similar in the two groups. The only difference as we found it lay in the changes seen in the veins.

Our series consisted of 106 patients, of whom 55 were diabetic and 51 were nondiabetic. There were 109 operations, 56 among the diabetic and 53 among the nondiabetic. In each instance the operation was performed at the level of the thigh.

The vascular tree was dissected from the site of amputation as far down toward the toes as possible. A careful description of the gross appearance was made. Sections were taken from the popliteal, anterior tibial, posterior tibial and dorsalis pedis arteries with the accompanying veins, small vessels and the surrounding soft tissues. In the majority of instances two or more levels of the same artery were studied. In some cases the dorsalis pedis was not sectioned. In several instances portions of the femoral, peroneal and the interosseus arteries were included in addition to the usual sections.

As a routine stain hematoxylin and eosin was used and in the majority, in addition, a modified Weigert elastic stain was employed.

In our series the white patients predominated. There were 95 of the white race and 11 of the Negro. In the 95 white patients we found 49 diabetic and 46 non-diabetic. Of the 106 patients there were 70 men and 36 women. Among the men we found 27 diabetic and 45 nondiabetic, while among the women there were 28 diabetic and 8 nondiabetic.

The relationship between the age incidence, the sex and the color was the same among the diabetic and the

From the Department of Laboratories and the First Medical Division, City Hospital, Welfare Island, Department of Hospitals, Read before the Clinical Society of the New York Polyclinical Medical School and Hospital at the stated meeting on Oct. 6, 1941.

nondiabetic. The average age of the diabetic was 65.5 years for the men and 65 for the women. In the male group the white patients had an average age of 65.3 years; the only Negro was 74. Among the women the average age of the whole group was 65.2 years. All the Negroes, 5 in number, fell into the seventh decade with an average age of 64 years. The youngest person in all the groups was a white man aged 44. The oldest was in the ninth decade and was a white man aged 82. There were 33 of the 55 patients between 60 and 69 years of age. Seven were younger and 15 were beyond the seventh decade. Among the nondiabetic the men averaged 68.1 and the women 67 years. The white men had an average age of 67.1 and the women of 67 years. There were only 4 Negroes, and they averaged 75.5 years and there was only one Negro woman, who was 65. The youngest person in the nondiabetic group was a white man aged 48 and the oldest was a white man aged 86. The majority of cases fell into the seventh and eighth decades, in which there were 20 and 19 respectively. The Negroes, of whom there were only 4, were all over 70 years of age. The white women, 7 in number, were also in the seventh and eighth decades.

Judging by the histories there was but little difference in the type of onset between the diabetic and the non-diabetic. We found notations relating to the onset in 105 of the 109 cases. There were four clinical types apparent: traumatic, infectious, trophic and insidious. In the 54 diabetic patients in this group we found 16 with a definite history of trauma as a precipitating factor. There were 3 with histories of frank infection; 8 were associated with trophic changes and 27 with an insidious onset. In the nondiabetic patients there were 13 with a history of trauma, 1 with a frank infection, 9 associated with trophic changes and 29 in whom the onset came on insidiously.

Mortality rates likewise varied little in the two groups. Up to the generally accepted forty-eight hour period for postoperative deaths there was a mortality of 6, or 11 per cent, in the diabetic and 5, or 10 per cent, in the nondiabetic. During the next eight days there were 8, or 15 per cent, diabetic deaths and 12, or 23 per cent, among the nondiabetic. From the tenth to the thirtieth day there were 13, or 23 per cent, who died in the first group and 7, or 14 per cent, in the second. The tabulation was carried out to the sixtieth day, and in the second thirty days 5, or 9 per cent, of the diabetic, and 6, or 12 per cent, of the nondiabetic died. The sixty day total, therefore, for the diabetic was 32 deaths, while that for the nondiabetic was 27.

### PATHOLOGIC FINDINGS

The pathologic changes in the arteries were similar in the diabetic and the nondiabetic. In fact we were unable to distinguish one type from the other without the aid of a history. To prove this to our satisfaction we examined, at several periods of our study, the individual slides after all marks of identification had been obscured. Without exception every attempt to classify the specimens as diabetic or nondiabetic failed. Hence because we were unable to group the changes as diabetic or nondiabetic we are presenting our findings without regard to this classification.

Because the amputated legs contained no elastic arteries, we are limiting our discussion to the muscular

arteries and the arterioles. We noted in our studies of the muscular branches that sclerotic changes were consistently present and were extensive as a rule. It was also noted that the media was the coat that bore the brunt of the sclerosis. Calcification was found in all but 6 cases. When it was well defined the deposit was largely in the media. In the early stages or in cases in which the deposit was light it was invariably found at the internal elastic lamina first and is then built up toward and into the media.

Fibrosis was universal and in the majority of cases was severe. It was practically always accompanied by inflammatory reaction and organization with granulation. The latter was frequently seen to progress to bone formation, when spicules of lamellar bone and bone marrow of fatty or fibrous nature were found. Functioning bone marrow with hemopoiesis was seen seven times, four times among the diabetic and three times among the nondiabetic. The six heretofore mentioned as being free from calcification likewise showed slight or minimal atherofibrosis.

Changes in the intima of the muscular branches were just as frequent and severe as in the media but of a different nature. Atheromatous deposits were in direct relationship to the caliber of the artery. The larger the vessel, the more the liability to atheromatous deposits in the intima. It was found that the popliteal artery presented such deposits frequently, the tibial arteries less frequently and the dorsalis pedis only infrequently. In the few instances in which the change was present in the dorsalis pedis the deposit was extremely heavy in the larger arteries. As a rule the changes in the smaller arteries were characterized by an intimal fibromatous deposit.

Arteriolar sclerosis, the type generally stated to occur in the arterioles and the fine twigs of the arterial tree, was recognized frequently enough to be a positive finding although not a universal one. Its presence or degree of involvement was in no manner related to the changes found in the muscular arteries. Hence it has become our strong conviction that the changes occurring in the arterioles were independent of those in the muscular branches.

In the veins, however, conditions were different. Acute venous thrombosis of the larger radicles was found less frequently among the diabetic than among the nondiabetic. This was found nine times in the former and nineteen times in the latter. Venous changes of a chronic nature such as are seen in phlebosclerosis were also less frequent in the diabetic. They were found in 11 of the diabetic and in 22 of the nondiabetic patients. Occasionally these changes had progressed to calcium deposits in the walls, but this was not a common finding.

Lymphangitis was almost invariably found where infection was present regardless of the presence at absence of diabetes. Pathologic changes in the nerves were never demonstrated in either group.

### DRY GANGRENE

Dry gangrene occurred in 7 of the diabetic legs. In these cases the gangrene began as a dry process and remained so during the entire course. In the non-diabetic, dry gangrene with a similar progress was found

11 times. Cases in which the gangrene began as a dry affair and later became infected and developed cellulitis were 9 in number in the diabetic and 17 in the nondiabetic. In other words the first evidence of arterial occlusion with mummifying gangrene was present in 16 of the diabetic and 28 of the nondiabetic patients. The nondiabetic with a gangrene originally dry often developed a subsequent cellulitis. Such a development was found to occur twice as frequently in the nondiabetic as in the diabetic.

### WET GANGRENE

Moist gangrene occurred in 32 of the diabetic cases and in only 20 of the nondiabetic. But few cases in either group developed a dry gangrene after the onset of the moist stage. There were 5 among the diabetic and only 2 among the nondiabetic, however, that came into this group. In the entire series 46 of the diabetic were associated with cellulitis at some time or another. Among the nondiabetic the total was slightly lower, 39 having a cellulitis at some period.

#### COMMENT

Joslin 1 and Wilder 2 believe that four types of arteriosclerosis can be distinguished: atherosclerosis, arteriolar sclerosis, Mönckeberg's sclerosis and senile sclerosis. Our data on atherosclerosis in this study are limited to its manifestations present in the legs. We can say, however, that this form of arterial change was frequently found in the larger muscular arteries such as the popliteal, with a diminishing occurrence as the branches got smaller. We also recognized arteriolar sclerosis in some of our cases. We feel, however, that we cannot accept Mönckeberg's or senile sclerosis as clearcut subdivisions. It seems to us there is no one type of arteriosclerosis that can be called by either of these terms. Likewise we feel that the changes in the arteries of the legs so frequently are a combination of atherosclerosis and the so-called Mönckeberg's sclerosis that the generic term of arteriosclerosis might be more applicable.3

Atherosclerosis, according to Joslin, is the characteristic vascular lesion among the diabetic. He accepts the fact that all types of arteriosclerosis are found in the legs of the diabetic with atherosclerosis predominating. He states that, in the legs removed from diabetic patients, he found a marked intimal involvement of the muscular arteries consisting of a heaping up of the intima with deposition of fatty material in which many cholesterol crystals were seen. He emphasizes the fact that atherosclerosis, supposed to be found only in the elastic type of arteries in the nondiabetic, is of common occurrence in the muscular arteries of the legs of diabetic patients. Wilder accepts the importance of atherosclerosis in the diabetic. He differs from Joslin, however, by saving that atherosclerosis may be found in the smaller muscular arteries of the nondiabetic. He feels that the frequency of atherosclerosis is not unusual in the arteries of the diabetic but the intensity of the process and the incidence of severe grades in the arteries of the heart and the legs are significantly greater in the diabetic than in the nondiabetic. He looks favorably on

the evidence of Warren 4 that long duration of diabetes is attended with more progression of atherosclerosis in the heart and legs than can be due to aging but says that many patients with diabetes of long duration present no more atheroma at autopsy than the nondiabetic of the same age.

We cannot agree with either Joslin or Wilder that atherosclerosis is the predominating form of arterial change in diabetic gangrene of the extremities. Nor can we agree with Joslin that it is not found in the muscular arteries of the leg in the cases of nondiabetic gangrene. Furthermore, we cannot accept the statement of Warren that the extent of the atheromatous change is in direct relation to the duration of the diabetes. Our feeling is that in a percentage of diabetic patients atheromatosis predominates but that in an equal percentage of the nondiabetic the same condition is found. Our studies show us that atherosclerosis may be mild or severe in either type of gangrene. When it is severe it is marked by extensive plaques in the large arteries and lesser deposits in the smaller branches. It is only in these severe cases that the dorsalis pedis artery becomes involved. Severe atherosclerosis therefore not only presents more involvement of the elastic arteries but extends peripherally toward the smaller arteries. This, we will repeat, is true for both types of gangrene.

Arteriolar sclerosis is generally accepted as a well defined lesion that may be found, among other places, in the finer twigs of the arteries of the legs. Root and Sharkey 5 of the Joslin Clinic, after a study of 175 autopsies with 48 instances of diabetic gangrene of an extremity, reported that atherosclerosis is the rule in these cases and that hypertension appears to accentuate They describe an intimal lesion with hyaline thickening and obliteration of the lumen. Wilder feels differently about the situation, saying that arteriolar sclerosis is no more frequent in the diabetic than in the nondiabetic. Though accepting the presence of arteriolar sclerosis in the extremities of the diabetic, he emphasizes the occurrence of medial hypertrophy, stating that it may be associated with atheromatous processes of the intima. We found arteriolar sclerosis in both types. It was the medial hypertrophy described by Wilder. However, we did not find the atheromatous changes associated with the medial hypertrophy. Nor did we find the extensive atheromatous process described by Root and Sharkey. Very rarely there was present calcification of the media close to the internal elastica. This was the closest approximation to so-called Mönckeberg's sclerosis of the larger muscular arteries that we encountered. Excluding any vascular lesions that might have been present in the kidney, the medial hypertrophy of the arterioles of the legs bore no relationship to the presence or absence of hypertension. Likewise it did not seem to bear any resemblance to occlusive disease of the large arteries in the immediate neighborhood.

Mönckeberg's sclerosis does not seem to us to be, in the legs at least, sufficiently cleancut to be considered an entity. Classification of this type of arterial change therefore is difficult, and a comparison of its occurrence in diabetic and nondiabetic patients is of questionable value. We have the feeling that if it is to be considered

^{1.} Joslin, E. P.: The Treatment of Diabetes Mellitus, ed 7, Philadelphia, Lea & Febiger, 1940.
2. Wilder, R. M.: Clinical Diabetes Mellitus and Hyperinsulinism, Philadelphia, W. B. Saunders Company, 1940.
3. MacCallum, W. G.: Textbook of Pathology, ed 6, Philadelphia, W. B. Saunders Company, 1936.

^{4.} Warren, Shields: Pathology of Diabetes Mellitus, ed. 2, Philadelphia, Lea & Febiger, 1938.
5. Reot, H. F., and Sharkey, T. P.: New England J. Med. 215: 605 (Oct. 1) 1936.

at all it must be looked on simply as a manifestation of atherosclerosis. According to Joslin it is a patchy involvement of the media without the accumulation of lipid. He brings out the point that it occurs together with atherosclerosis and in such close relation that it suggests strongly that they are the same process. Wilder agrees that it is patchy, goes on to necrosis and calcification and lacks lipid deposits. He believes that it involves the legs by predilection. Like Joslin he considers that the primary seat is in the media and that it well may be a part of the same process as atherosclerosis. We accept the presence of a condition generally called Mönckeberg's sclerosis but we feel that the process is an arteriosclerosis whose character is determined by the anatomic structure of the arteries in which it is found. MacCallum has stated that one may well expect the manifestations of arteriosclerosis to be different in different portions of a system varying so greatly in its anatomic structure. However, as far as we were able to identify it in the specimens concerned in our studies we were unable to note any difference in its presence in either the diabetic or the nondiabetic.

Senile sclerosis likewise seems to us to be a misnomer. Let us consider Joslin's conception of this subdivision of arteriosclerosis. He accepts it as a diffuse fibrosis causing a change in the elastic tissue with a loss of elasticity and degeneration. Wilder, who also uses this term in his classification, considers it a diffuse change consisting of progressive deterioration with splitting of the internal elastic membrane and formation of new fibrous tissue. We can take no issue with these findings but we cannot accept that these changes are of a senile nature. We feel that this is not positively a condition of old age, as it is found occasionally in childhood, frequently in the third decade, and may be practically absent in the eighties and nineties.

Combinations of the various types of arteriosclerosis are frequently found. This naturally leads to great difficulties in arriving at clearcut conceptions of the various subdivisions and often makes it difficult to determine the type present in the individual case. Joslin states that any or all varieties may be associated with the so-called senile type. He also says that Mönckeberg's sclerosis and atherosclerosis are a very common coincidence. Wilder notices the same combinations. We found the different types of arteriosclerosis occurring in various combinations. There was, however, no difference in the combinations found in the diabetic and the nondiabetic specimens.

Occlusion of the lumen of the artery is the serious development in arteriosclerosis. It is generally accepted today that such occlusions can be attributed mainly to atherosclerosis with a rare incidence due to Mönckeberg's sclerosis. The other types are not held responsible for any part in this phenomenon. Ordinarily the process develops slowly, but it may be found at times to advance rapidly. The time element may not be the sole factor, as some cases appear to occur with a rapid tempo. As the atheromatous process progresses there is a tendency for degenerative changes to occur in the endo-This degeneration is the prelude to arterial thrombosis. A second process can occur. Instead of thrombosis there may be ulceration with a discharge of the underlying atheromatous deposit into the blood stream.

In our study we found an equal number of diabetic and nondiabetic patients with gangrene from occlusion. In view of the fact that the diabetic incidence in the general populace is about 1 per cent, our finding of an equal number in each group coming to amputation suggests strongly that peripheral occlusive disease is many times more frequent in the diabetic.

Both acute and chronic changes were more frequent in the veins of the nondiabetic. This may be accidental, but it does suggest that the condition of the veins may have a definite bearing on the more frequent occurrence of venous occlusion in the nondiabetic.

It is commonly stated that diabetic gangrene is usually moist and nondiabetic gangrene dry. To this we cannot agree. We found that almost two thirds of the nondiabetic specimens were complicated at some time with cellulitis, with but a slightly larger number of diabetic patients similarly involved. Again early and extensive cellulitis was not uncommon in the nondiabetic, although it was somewhat more frequent in the diabetic.

Since these findings are contrary to those of most investigators, several questions arise: 1. Does the phlebosclerosis which we found more frequently in the nondiabetic play a role in the increased incidence of infection? 2. Are there metabolic tissue changes in the diabetic which are the deciding factors in the absence of phlebosclerosis? 3. Is the term "wet gangrene" too loose and would the use of more rigid criteria help to differentiate the conditions found in the presence of infection?

With regard to the phlebosclerosis, our findings are suggestive that it may play a role; but no dogmatic statement can be made. Metabolic changes can very well be considered as possible factors, as it is well accepted that infection in any part of the body is more severe among the diabetic than among the nondiabetic. With regard to the final question, we believe that the term "gangrene" is used rather promiscuously. We feel that a more careful observation and use of terms is advisable. As Williams and O'Kane 6 have shown in their classification, careful evaluation of the physical findings will usually distinguish between the result of occlusive disease and infection.

### SUMMARY AND CONCLUSIONS

The peripheral vascular pathologic condition of 100 amputated legs was studied. There were 56 diabetic specimens and 53 nondiabetic specimens. The two types were in the same age period. The women outnumbered the men in the diabetic group. The opposite was true in the nondiabetic group. The arterial changes were similar in the two groups. Acute venous occlusions and phlebosclerosis were more frequent among the nondiabetic. Infection with cellulitis was only slightly more frequent in the diabetic group. Dry gangrene occurred almost as frequently in the diabetic as in the nondiabetic. The occlusive element in arteriosclerosis is the dangerous feature in both types. The terms dry and wet gangrene do not properly describe the conditions found. More rigid criteria and more careful differentiation between the lesions secondary to occlusive arterial disease and those due to infection should be instituted.

939 Woodycrest Avenue.

^{6.} Williams, F. W., and O'Kane, T. J.: Surg., Gynec. & O'st. 613: 956 (Ma) 1937.

### DOES DIABETES MELLITUS PREDISPOSE THE PATIENT TO THE PYOGENIC SKIN INFECTIONS?

A STUDY OF THE ETIOLOGIC RELATIONSHIP OF FURUNCULOSIS AND CARBUNCLE

JOHN R. WILLIAMS, M.D. ROCHESTER, N. Y.

There is a prevailing impression among both physicians and laymen that boils and carbuncles are commonly associated with diabetes and that the diabetic are predisposed or more likely to suffer from these pyogenic skin infections than are the nondiabetic. An examination of the literature does not support this view. The Cumulative Index, beginning with the year 1917 to March 1941, covering a period of more than twentyfive years, lists only seven articles dealing with carbuncle or furunculosis in association with diabetes. In each instance they are case reports and descriptions of surgical treatment. None of the standard manuals on diabetes discuss the incidence of skin infections, the text being confined to treatment. This is also true of many of the prominent manuals relating to the general practice of medicine. It may be said, therefore, that there is practically no evidence in the literature supporting the conclusion that diabetes mellitus predisposes to pyogenic skin infections. Since these infections are usually very serious as to comfort and often fatal, the subject is worthy of more careful study than it has thus far received.

In an attempt to learn how frequently furuncles and carbuncles occur both independently and in association with diabetes, a study was made of the admissions to two large general hospitals, the Strong Memorial and the Rochester General, and of the office practice of several general practitioners.

In one of these hospitals during the years 1938, 1939 and 1940 there were a total of 27,209 admissions. Of these, 330 were diabetic patients, 8 of whom were afflicted with boils or carbuncles. In the remaining 26,879 patients there were 166 instances of boils or carbuncles.

In the other large general hospital over the same period there were 43,980 admissions; 295 patients were afflicted with boils or carbuncles; of these 8 were diabetic.

Since the advent of insulin and the improvement in the general treatment of diabetes, only diabetic patients afflicted with a serious complication have sought admission to hospitals. For the most part too they are the elderly or middle aged. This is particularly true of patients with carbuncles.

In 2,130 office patients of four general practitioners, there were 89 instances of furunculosis or carbuncles. In this group there was but 1 diabetic patient who had a furuncle. From these data it is obvious that there is no significant etiologic relationship between pyogenic skin infections and diabetes.

It is important to inquire how frequently diabetic patients contract skin abscesses. In doing so it should be borne in mind that, when a person is once afflicted, diabetes becomes a permanent malady. Under the present method of treatment the diabetic apparently live on indefinitely. I have under my care several patients who

acquired diabetes before the advent of insulin. Some of these were children at its onset. They have lived fairly normal lives since; many have married and have achieved parenthood. The diabetes is not a disabling handicap. Many patients have thus gone on from five to twenty-five years. A certain number of nondiabetic persons in such a period of time would normally contract pyogenic skin infections. It follows therefore that a similar proportion of diabetic patients may be expected to become infected.

A study of 500 diabetic patients admitted to both office and hospital practice was made with reference to the incidence and occurrence of the pyogenic skin infections diagnosed as boils and carbuncles. They are classified according to sex and age in the accompanying table.

In only one instance did the onset of a boil coincide with the discovery of diabetes. In all the other cases except 1, both boils and carbuncles occurred long after the onset of diabetes and apparently as an independent and unrelated phenomenon. In the 1 case that was an exception the carbuncle occurred ten years before the onset of the diabetes.

Occurrence of Boils and Carbuncles in Five Hundred Cases of Diabetes

	Cases
Young, under 21 years	75
Old, over 21 years	424
Male	240
Female	260
Boils, total occurrence in 500	13
Carbuncles, total occurrence in 500	7

Although the numbers of cases in this study are small, they support the opinion and conclusions of other workers who have examined the question. They are as follows:

- 1. The prevailing assumption that diabetes mellitus predisposes an individual to pyogenic skin infections is not supported by clinical investigation.
- 2. Pyogenic skin infections occur no more frequently in diabetic than in nondiabetic individuals.
- 3. Both of these complications occurred more frequently in the middle aged and elderly in whom a general breakdown was evident. It is extremely doubtful that diabetes increases the susceptibility of the diabetic appreciably to pyogenic skin infections.

388 Monroe Avenue.

Yellow Fever Surveys.-The discovery of a simple test in the mouse for the presence of immune bodies to yellow fever, and the fact that after a natural infection with yellow fever immune bodies persist for very many years-probably for the life of the individual-have enabled surveys to be undertaken for the purpose of determining the distribution of yellow fever both in space and time. Such a survey was initiated in Africa in 1933 by the International Health Division of the Rockefeller Foundation. The results of the survey in the Anglo-Egyptian Sudan, published by Hewer (1934) and by Sawyer and Whitman (1936), show that if the specificity of the test is accepted yellow fever is not confined to the West Coast of Africa, as was believed for many years, but extends eastward as far as the White Nile.-Findlay, G. M.; Kirk, Robert, and MacCallum, F. O.: Yellow Fever and the Anglo-Egyptian Sudan: Distribution of Immune Bodies to Yellow Fever, Ann. Trop. Med. 35:121 (Dec. 31) 1941.

## FATTY DEGENERATION OF THE LIVER IN PREGNANCY

REPORT OF A CASE WITH RECOVERY: CHEMICAL AND HISTOLOGIC STUDIES

> FRANK E. WHITACRE, M.D. AND L. Y. FANG, M.D. PEKING, CHINA

Acute yellow atrophy of the liver, also known as icterus gravis, acute parenchymatous hepatitis, malignant jaundice, parenchymatous degeneration of the liver or acute necrosis of the liver, is a widespread degeneration of the liver with toxic manifestations, jaundice and a reduction in the size of the liver. We prefer the term acute necrosis as more descriptive of the condition but will adhere to acute yellow atrophy, as it is so well established in the literature. It is known to occur at all ages in both sexes but is rare in pregnancy. The first case of acute yellow atrophy of the liver in pregnancy was described by Kerkring in 1706 and quoted by Williams,1 and most writers since then have referred to the relation of the disease to pregnancy Although very rare, it may be epidemic, as reported by Kent,2 who observed 14 cases within eighteen months, all in association with pregnancy. But Kent's series lacks pathologic confirmation. In association with pregnancy. acute yellow atrophy of the liver is generally included among the toxemias of pregnancy. Typical attacks have occurred in men and in nonpregnant women, which should separate it from the toxemias of pregnancy as the term is commonly used.

Judging from the pathologic observations, there is a milder form of the disease which is variously known as acute hepatitis, toxic hepatitis and obstetric acute vellow atrophy. Hepatitis in the sense of evidence of infection is not the predominant lesion, but rather extensive fatty degeneration of the central portions of the liver lobules without actual necrosis or atrophy. Fatty degeneration of the liver seems to be a more descriptive term onset and the usually fatal clinical course are identical with those of true acute yellow atrophy, and the location and type of lesion, that is, fatty changes in the liver cells in these central portions of the lobules, are the same. Although the liver cells in these areas are not disintegrated, that would seem to be a matter of degree rather than of kind of disease. Until more convincing evidence is presented, we will consider this condition as an early stage of acute yellow atrophy.

### INCIDENCE

The frequency of acute yellow atrophy of the liver is quoted by different authors in wide variation, but all agree that it is very rare. There is little information on the incidence of this disease in China.

In reviewing the case histories of the Department of Obstetrics and Gynecology of the Peiping Union Medical College, we found only 4 cases in the records of approximately 10,000 deliveries. Two of these cases were discarded because of insufficient evidence. had been reported by Hsiung,3 and a report of the remaining case is now in process of publication.

Among 94,000 patients admitted to this hospital the diagnosis of acute yellow atrophy of the liver has been made for only 12. For 9 of these the diagnosis was made only on the clinical findings; 7 were men, and 5 were women in 4 of whom the disease was in association with pregnancy. The 3 cases in which autopsy was done appeared among the records of 3,400 autopsies.

Dr. Gordon King 4 of Hongkong stated that acute yellow atrophy of the liver had not been observed during the past 31,113 deliveries from the year 1926 to 1940 inclusive in the department of obstetrics of the University of Hongkong.

Dr. Amos Wong 5 of Shanghai informed us that at St. Luke's Hospital, Shanghai, acute yellow atrophy oi

Blood Analyses

Date	Tune	Bilfrubín	Nonprotein	Uren Nitro	Urfe tefd	Amino Acids	Chlorides	Sugar	Carbon Dioxide
1/30/41	12 n	67	32	11 4	47	74		111	29,2
1/31/41	9 20 a m.	11 4	43	15 5	40	11.4		143	467
2/ 1/41	4 a m 8 10 a.m 9 25 a m 11 10 a m 4 p m	11 4 12 7 11 4	<i>3</i> 8	18 0	40	90 :	520	180 280 95 26 55	20 G 50 T 26 G
2/ 2/41	8 15 p m	•		,,		• •		36	70.0
2/ 2/41	8 10 a m 5 p m 8 p m	66	33 	15 5	. 36	67	508	111 49 160	50 0
2/ 3/41	8 a m 4 p m	50	26	II 4	33	58	503	44 57	
2/ 4/41	9 a m 9 p m	40	24	94	30	45	625	40	50.4
2/ 5/41	10 50 a m 10 30 p m	4 0	25	90	2 4	54	620	103 87	44.9
2/6/41	10 20 a m	50	22	127	26	42	561	12	39.3
2/ 7/41	3 45 p m	50	24	121	2 4	52	590	151	49.4
2/8/41	10 a.m	56	29	150	22	63	6.20	165	1.6
2/ 9/41	9 40 a m 5 30 p m	5 T	33	140	24	67	500	ಟ 70	\$0 G
2/10/41	8 50 a m 4 40 p m	5 1	26	11 4	2 2	67		77 27	rs.3
2/11/41	8 10 a.m 5 p m	30	25	12 1	22	66	619	100	397
2/12/41	8 40 a m	23	26	121	28	66		91	92.7
2/13/41	8 25 a m 11 p m	36	26	120	18	4,9	585 •	87 74	1 تى
2/14/41 2/15/41	8 o0 a m	22	'0	120	21	5 5	5 ^(H)	105 160	57.9
2/15/41	8 30 a m 4 40 p m	20						£0	

All the values are expressed in milligrams per hundred cubic centi-meters of blood except the carbon dioxide combining power, which is in volumes per cent

the liver had not been observed during 450 autopsic; performed over a period of three years, while at the Red Cross Hospital it was observed three times in 700 autopsies over a period of thirteen years. In I case the disease had been in association with pregnancy. One can say only that this condition is very rare in China

### ETIOLOGY

The cause of acute yellow atrophy of the liver is still in question, and it may be that various factors work simultaneously in an individual case. The disease has been definitely associated with certain chemical poisons, for example chloroform, arsenic, phosphorus, cinchophen and carbon tetrachloride, to mention only a few-

Many theories are advanced to explain this condition. Of importance is the work of Opic," who found that

From the Department of Obstetrics and Gynecology, Peiping Union Medical College
1. Stander, H J. Williams Obstetrics, ed 7, New York, D Appleton-Century Company, Inc. 1936, p 722
2. Kent, Celal: Zentralbl f Gynäk, 62: 429 (Feb 19) 1938.
3. Hstung, V.: Nat. M J. China 14: 211 (Aug.) 1928

Wong, Amos
Opic, E. L., J. Exper. Med. 12:367, 1910

the combination of chloroform and infection may produce in dogs a condition similar to acute yellow atrophy in man. Changes in the liver produced by disturbances in metabolism may explain the fact that in more than one half of the reported cases involvement has occurred during the last half of pregnancy, at a time when changes in metabolism are well known to occur. Previous damage to the liver has been suspected, and both catarrhal jaundice and cirrhosis of the liver have been

The Peiping Union Medical College Hospital admits a large number of patients in the terminal stages of disease. The relative number who have pregnancy with complications is high. It is surprising that, in an area where the nutritional state of the population is low, the incidence of avitaminosis and nutritional edema is high and where previous damage to the liver, such as cirrhosis, is relatively common, acute yellow atrophy of the liver associated with pregnancy has occurred not more than five times in this hospital in twenty years. It seems probable that a single infection or toxin is

not responsible but that a combination of factors in the presence of impairment of hepatic function may produce the disease.

#### REPORT OF CASE

A few cases of recovery from acute yellow atrophy of the liver which were based on clinical observations have been reported. The case reports of Townsend and Millar 8 brought in the question of chloroform poisoning, the dangers of which are well established. The diagnosis in the case reported by Duncan and MacLachlan 9 is not convincing. One case of acute yellow atrophy of the liver in pregnancy, with recovery, was described by Way 10 but the diagnosis was

supported only by observation of the size of the liver at operation. In a search of the literature we found no report of a case of proved acute vellow atrophy, or fatty degeneration, of the liver in association with pregnancy with recovery. We are reporting such a case, including data on two biopsies of the liver, in considerable detail, in the hope that added chemical, histologic and clinical data may finally result in a better understanding of this obscure disease. The detailed account of the stormy course, the treatment and the studies on the patient, who was admitted to our service in the early stage of the disease, is as follows:

A Chinese woman aged 30, a secundigravida and primipara, was admitted to the hospital on Jan. 30, 1941 not definitely in labor. Her expected date of confinement was February 21. She had had antepartum care in our hospital and was found to have a flat pelvis; the diagonal conjugate measured only 10 cm. The blood Wassermann and Kahn reactions were negative. Her first baby had been born spontaneously two years before, after a labor of forty-eight hours, but the baby died of convulsions three days after birth. On January 25 the patient was brought to our teaching clinic for demonstration of cephalopelvic disproportion, and at that time she complained of general weakness and loss of appetite and had eaten but little

10. Way, Stanley: Lancet 2: 934 (Oct. 28) 1939.

for several days. The patient caught cold on the same day and started to have epigastric discomfort, with vomiting of coffee ground material on the following day. She gave a history of repeated vomiting of the food eaten during the course of gestation until two weeks before admission. Constipation had been present for the past three days. Jaundice was not noticed by the family members. She had been an opium addict for four months, but otherwise there was no history of taking any drug or medicine.

On admission the temperature was 37.5 C., the pulse rate 90 and the blood pressure 110 systolic and 80 diastolic. The patient was icteric, mentally dull and drowsy but conscious. She had the symptoms and signs of infection of the upper part of the respiratory tract, but the lungs were clear and the heart was normal. The spleen and the liver were not palpable, and the area of hepatic dulness was not diminished. The patient vomited several times, producing a coffee ground material; the reaction to the guaiac test was strongly positive for blood. The van den Bergh reaction was direct and immediate, and the icterus index was 20. The bilirubin content was 6.7 mg, and the carbon dioxide combining power was 28 volumes per cent. The liver, by the bromsulphalein test, showed 40 per cent retention after thirty minutes. The hemoglobin

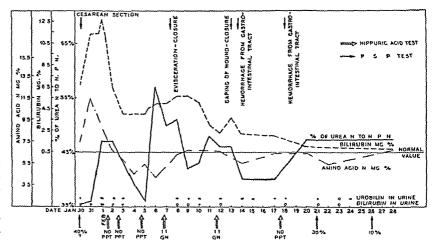


Fig. 1.-Fatty degeneration of liver in pregnancy; liver function.

content was 14.9 Gm, and the white blood cell count was 29.400. The urine showed a trace of albumin and urobilin (1 plus) but was negative for bilirubin. Intravenous dextrose therapy was started after a sample of blood for chemical tests was obtained. (The actual amount of dextrose solution and blood transfusions administered to this patient are recorded in fig-

The patient had moderate labor pains for four hours without progress, and drowsiness increased until she was in stupor. A tentative diagnosis of early acute yellow atrophy of the liver was made, and termination of the pregnancy was thought to be wise. A cesarean section was done, and, although local anesthesia was tried, the patient was uncooperative, and gas and oxygen with a little ether had to be used. The baby was apneic at birth but cried vigorously a few minutes later. liver was found to be normal in appearance and size, and a biopsy specimen was obtained.

On January 31 the patient coughed severely. The jaundice was worse, the icterus index being 75 and the bilirubin content 11.4 mg. There was no albumin or sugar in the urine but there were bilirubin (2 plus) and tyrosine (detected by the sulfuric acid test), 1 plus; tests for leucine gave negative results. On February 1 the blood sugar level steadily rose to 280 mg. with sugar (1 plus) and acetone (3 plus) in the urine. Ten units of insulin was given, and in two hours the blood sugar fell to 26 mg, and the patient was in hypoglycemic shock, from which she recovered after the intravenous injection of a solution of dextrose. The bilirubin in the blood increased to 12.7 mg. on the same day. From February 2 to 6 the patient was steadily improving, although the violent coughing

^{7.} Townsend, Eric: Brit. M. J. 2:558 (Sept. 9) 1939. 8. Millar, W. M.: Brit. M. J. 1:1284 (June 24) 1939. 9. Duncan, Cameron, and MacLachlan, G. R.: Am. J. Obst. & Gynec. 5:157 (Jan.) 1933.

persisted. The blood sugar was low in spite of the repeated dextrose infusions and the patient had frequent symptoms of hypoglycemia. Insulin, 5 to 10 units, was given together with each dextrose infusion during the first few days. The jaundice improved, and the bilirubin in the blood fell to 4 mg. on

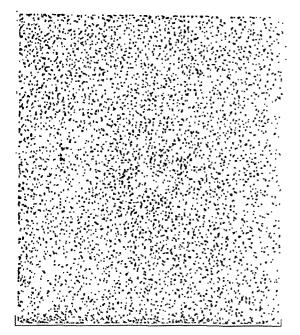


Fig. 2.—First biopsy specimen, showing central vein in the center with thin rim of normal liver cells around portal spaces;  $\times$  55.

February 4. The patient developed ascites, with leakage of bile tinged ascitic fluid from the wound. The renal function, judged by the phenolsulfonphthalein test, was normal and the hippuric acid test of hepatic function repeatedly produced no precipitate. On February 7, after severe coughing, the abdomi-

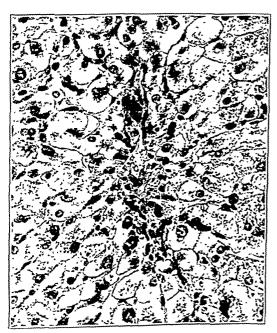


Fig. 3.—First biopsy specimen, showing swollen clear liver cells and compressed sinusoids around a central vein; X 300.

nal incision separated and loops of bowel were extruded. A secondary closure was done under spinal anesthesia. The liver was smaller than before and yellow tinged, and another biopsy specimen was taken. Much bile tinged ascitic fluid was removed by suction. The hippuric acid test done on that day showed 1.1 Gm. of benzoic acid. For the next few days the

patient was critically ill, the bilirubin in the blood increased and she coughed almost continuously. On February 13 the abdominal incision gaped again, a loop of intestine was found caught in the wound and there were symptoms and signs of partial intestinal obstruction. Another closure, with silver wire as the suture material, was done on the same day with the aid of spinal anesthesia. There was a moderate amount of fluid in the peritoneal cavity, and the liver was not inspected as the incision was infected. On February 14 and 18 the patient had profuse hemorrhage from the gastrointestinal tract, the discharge from the duodenal tube being bright red, and as much as 1,400 cc. of dark old blood was passed in the stools on one occasion. She was in shock several times and had to be given blood transfusions together with infusions of dextrose. After February 19 the patient gradually improved and there was no more bleeding. The jaundice disappeared, the bilirubin in the blood reaching the normal value on February 20 and the intravenous administration of dextrose was not necessary after February 23. The bromsulphalein test showed 30 per cent retention at the end of thirty minutes on February 21, 10 per cent on February 26 and a trace on March 7. The



Fig. 4.—Second biopsy specimen, showing stage of recovery with clear cell occupying only about half of each lobule; X 55. Compare with figure 2.

temperature and the pulse rate fluctuated according to the severe clinical course. On February 8, when the patient was in desperate condition, the temperature was 39.6 C, (104 F.) and the pulse rate 140. After this both the temperature and the pulse gradually improved until they were normal on February 20. An infection in the incision was drained, the wound healed and the patient has apparently completely recovered.

### CHEMICAL ANALYSES

The clinical picture on admission strongly suggested an early process of liver damage. A blood specimen showed sugar of 111 mg., uric acid of 4.7 mg., nonprotein nitrogen of 32 mg., urea nitrogen of 11.4 mg. and amino acid nitrogen of 7.4 mg. per hundred cubic centimeters of blood. The blood sugar was normal, while the uric acid and amino acids were at the upper limit of normal range. The urea nitrogen was 35 per cent of the nonprotein nitrogen, which was somewhat low as compared with 45 per cent, the average ratio in normal pregnancy according to Stander. 11 The carbon dioxide combining power of 28.2 was far below the value for normal pregnancy at term of 45 volumes per cent, indicating a low alkali reserve. The bilirubin of 6.7 mg. and the icterus index of 20 were considerably above the normal values. The van den Bergh test was direct

11. Stander, H. J.: Bull. Johns Hopkins Hosp. 35: 133 (Mar) 1924.

and immediate. The bromsulphalein test showed 40 per cent retention after thirty minutes. These findings suggested some form of liver damage. The blood sugar rose steadily during the next three days as a result of the large amounts of dextrose given. Subsequent blood specimens showed significant changes on January 31 (the fifth day of the disease), when the bilirubin was 11.4 mg. At this time the urea nitrogen formed 36 per cent of the nonprotein nitrogen and the amino acids reached a high point of 11.4 mg. On February 1 the bilirubin was 12.7 mg. and the icterus index was 120. The blood chlorides were consistently high throughout the course of the disease. On February 8 the serum albumin was 1.7 Gm. and globulin 2.8 Gm. per hundred cubic centimeters of blood. The patient was improving, when coughing produced evisceration and made a second operation necessary. This setback may account for the fall in the urea nitrogen ratio to nonprotein nitrogen, increase in bilirubin and amino acid nitrogen and the fall in blood sugar. The blood chemical studies were continued daily until the values were within normal limits. The blood sugar was carefully watched because of its dangerous fluctuations and it finally became stable on February 12.

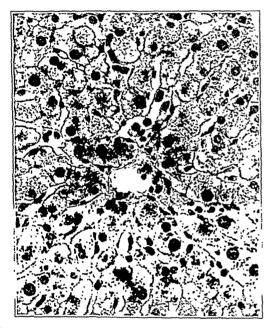


Fig. 5.—Second biopsy specimen, showing stage of recovery with droplets of fat occupying less of area of each cell;  $\times$  300. Compare with figure 3.

The urinary findings were not so complete. The twenty-four hour urine specimens were examined for urea nitrogen, the values being 1.8 Gm. on January 31, 156 mg. on February 3 and 576 mg. on February 6. Tyrosine was found in the urine on January 31, and leucine was negative. The excretion of urea was decidedly low and corresponded both with the low blood urea and with the severe clinical course. Animonia nitrogen and the total nitrogen were not determined, but as the carbon dioxide combining power showed no acidosis after the first day we may assume that no unusual amount of ammonia was excreted.

Bollman, Mann and Magath 12 showed that formation of urea and deaminization of amino acids in the body are dependent on the liver. These experiments explain the significance of a relative decrease in the urea nitrogen and increase in the amino acid nitrogen in the presence of damage to the liver. The low urea nitrogen, high amino acids, high bilirubin and the fluctuations of the blood sugar all pointed to an advanced degree of disintegration of liver function. Just as the pathologic changes observed in the liver of a recovered patient are not quite as extensive as those from an autopsy specimen, so also the chemical findings are not as striking as is seen in fatal cases.

# 12. Bellman, J. L.; Mann, F. C., and Magath, T. B.: Am. J. Physiel. 69: 371 (July) 1924; 78: 258 (Oct.) 1926.

### OTHER LABORATORY FINDINGS

On admission the blood hemoglobin was 14.9 Gm., red blood corpuscles 5.5 million and white blood corpuscles 29,400, of which 84 per cent were polymorphonuclear leukocytes. The red cell count and hemoglobin were affected by intestinal bleed-

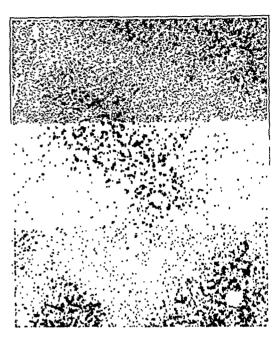


Fig. 6.—Second biopsy specimen, showing fat laden liver cells occupying half of each lobule around the central vein; X 55. (Fat stain with scarlet red.)

ing late in 'the course of the disease. The leukocyte count gradually rose to 38,000 on February 7 and then slowly fell to 12,000. Daily examinations of the urine showed an occasional trace of albumin; sugar was positive on many occasions, and acetone was detected only once. Bilirubin was positive

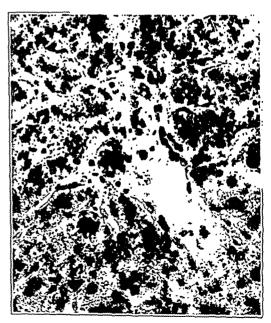


Fig. 7.—Second biopsy specimen, showing fat droplets within the liver cells; × 300.

during the first few days, and urobilin was consistently positive up to February 24. The renal function as shown by the phenolsulfonphthalein test was 60 per cent in two hours on February 6, February 17 and March 15. No casts were found. Cultures of the abdominal wound were positive for Staphylococcus citreus on six occasions. Staphylococcus aureus was

cultured once from the blood. Blood agglutination tests against Eberthella typhosa, Proteus X 19, Salmonella enteritidis and Brucella abortus were all negative.

#### PATHOLOGIC OBSERVATIONS

The pathologic examinations were made by Dr. C. H. Hu. The first biopsy revealed that the liver architecture was normal. The liver cells in the central three fourths or four fifths of each lobule showed very distinct cell borders and clear cytoplasm in which the granules were gathered into a small clump situated in the neighborhood of each nucleus, while the rest of the cytoplasm contained very few granules. Toward the periphery of the lobule the liver cells were less clear, their cytoplasmic granules became more uniformly distributed and the cell borders were less conspicuous. The liver cells in the central portion of the lobule also contained a small amount of yellowish pigment, which was absent in those at the periphery. There was no evidence of cell necrosis.

The sinuses were very narrow or collapsed. The Kupffer cells were inconspicuous. Occasionally one such cell in the central portion of the lobule contained a yellowish pigment.

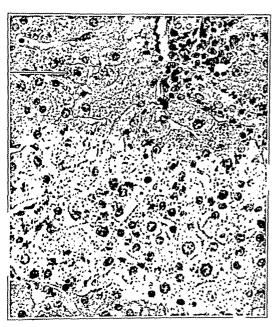


Fig. 8.—Second biopsy specimen, showing stage of recovery with small bile duct and mild hepatitis above and junction of normal liver cells with those containing fat below; × 300. Mitosis indicated by arrows.

The periportal spaces showed no striking change with the exception of infiltration by a few polymorphonuclear leukocytes and lymphocytes. The bile ducts were normal. The diagnosis was central fatty change of the liver, slight hepatitis.

The second biopsy revealed similar general microscopic features, but the following differences may be noted:

- 1. The clear cell central zone was smaller. It represented about one half instead of three fourths or four fifths of a lobule.
- 2. Infiltration of the polymorphonuclear leukocytes, lymphocytes and plasma cells was slightly more conspicuous.
- 3. The nonclear cells adjoining the clear cell zone showed frequent mitosis. Mitoses were also sometimes observed in the clear cells.

Frozen sections of both biopsy specimens stained with scarlet red were studied. They showed that the clear cells were filled with fat globules, most intensive in the middle one third to one half of the lobule and surrounded by a less intensive middle zone, bordering on the unaffected cells near the portal spaces. The diagnosis was central fatty change of the fiver, slight hepatitis.

### SIGNIFICANCE OF PATHOLOGIC FINDINGS

At the first operation there was a small amount of clear yellowish green fluid in the peritoneal cavity. The liver was normal in size and color. A small piece of tissue for biopsy was taken from the inferior margin. Except for its pallor it was not remarkable in appearance. During the second operation, nine days later, a large amount of bile tinged ascitic fluid was removed by suction. The liver was definitely smaller and a yellow tinge was apparent. The lobulations were normal and the site where tissue was removed for the first biopsy was healed. No nodular elevations were found, and the surface was smooth. A second specimen for biopsy was taken from the inferior margin of the liver. Grossly, the piece of tissue appeared lighter in color than the previous one but was otherwise not remarkable. From the pathologic report and accompanying photomicrographs, it was clear that the biopsies did not show areas of necrosis and that only a slight degree of hepatitis was present. The predominant lesion in both specimens was one of definite fatty degeneration involving four fills of the liver cells around the central vein of each lobule in the first one and only one half of the liver cells in the same areas in the second. The affected cells were swollen with vacuoles of fat while a rim of cells around the portal spaces remained unaffected. It seemed definite that most of the fat laden cells may return to normal, when not irreparably damaged, without pronounced changes in the structure of the liver as reported in cases of nodular hyperplasia by Umber,13 Miller and Rutherford,14 Whipple 15 and Pool and Bancroft.16

#### CLINICAL COURSE AND TREATMENT

It was of great importance that we demonstrated this patient on Jan. 25, 1941 to our students in discussing another subject. At that time she stated that she had had vomiting on and off through the whole pregnancy but that there had been no vomiting for several weeks. Loss of appetite and general weakness for one week before admission were sufficient to compel her to stay in bed. There was no icterus or other complaints. She contracted an infection of the upper part of the respiratory tract on January 25, and vomiting of coffee ground material began on January 26. On admission, vomiting of material containing blood, icterus and drowsiness were the outstanding findings. The temperature, pulse and blood pressure were within normal limits, and the physical examination revealed nothing of importance except the respiratory infection. The history of persistent vomiting for four days and the increase in drowsiness to the point of stupor were of course significant. Termination of the pregnancy as soon as the diagnosis of acute yellow atrophy of the liver is established is recommended by De Lee.17 The symptoms, the clinical findings and the presence of cephalopelvic disproportion decided the immediate course of treatment. As delivery could not be expected for hours or days, a cesarean section was performed, and during the operation removal of a piece of liver tissue for biopsy seemed justifiable. Unfortunately, in her drowsy state she was uncooperative to the use of local anesthesia, and gas and oxygen had to be used, supplemented by a small amount of ether. During the active course of the disease the blood sugar was determined several times a day before dextrose infusions. For twenty-five days she received from 210 to 370 Gm. of dextrose daily by intravenous infusions, mostly in the form of 20 per cent in isotonic solution of sodium chloride. In spite of the large amounts of dextrose given, the blood sugar was low and the patient had frequent symptoms of hypoglycemia. Small doses of insulin, 5 to 10 units, were given together with the infusions, in the hope that the sugar would be better utilized. It was not probable that hypoglycemia was due to the very small amounts of insulin given because this condition also occurred when no insulin was being used, and the failure of

^{13.} Umber, F.: Deutsche med. Wchnschr. 45: 537 (May 15) 1919.
14. Miller, J., and Rutherford, A.: Quart. J. Med. 17:81 (Or.)
1923.

^{14.} Miller, J., and Rutherford, A.: Guate J.
1923.
15. Whipple, A. O.: Am. J. Surg. 6: 655 (May) 1929.
16. Pool, E. H., and Bancroft, F. W.: Surg., Gynec. & O'at. 37: 44 (Jaly) 1929.
17. De Lee, J. B.: Principles and Practice of Obstetrics, cl. 7, July delphia, W. B. Saunders Company, 1938, p. 423.

the liver to store glycogen must have played an important role. On one occasion when the blood sugar was 280 mg. with sugar and acetone in the urine, 10 units of insulin was given. The blood sugar fell to 26 mg. within two hours, and the patient was in hypoglycemic shock. Blood transfusions of 200 to 400 cc. were given on eleven occasions in twenty-two days. The violent and continued coughing of the patient resulted in a complete separation of the abdominal wound on two occasions. During the repair of the first separation, a further study of this obscure liver condition by biopsy, with the patient in good condition, seemed desirable and harmless. Bleeding from the upper part of the gastrointestinal tract, which occurred after the second separation of the wound, complicated the picture. The prothrombin time was normal at the time of bleeding. Sulfanilamide was given cautiously, only 6 Gm., and discontinued. Sulfapyridine was given on February 13, 6 Gm. in twenty-four hours, and discontinued because of gastrointestinal hemorrhage. Throughout the entire course of the disease, opiates were administered in varying amounts as necessary. Thiamine hydrochloride 5 mg. twice daily was given during the first few days and later the dose was reduced to 5 mg, daily. The blood pressure and the fundi were found to be normal, but one week after operation, when the blood pressure was elevated, the fundi showed hypertensive changes indicated liver damage. It is fair to assume that during the next two days, when the patient was in critical condition and when the chemical findings of the blood showed greater impairment of liver function, that the extent of liver damage was also correspondingly increased. The second biopsy showed intensive fatty degeneration but involving only one half of each lobule, and at this time the chemical findings in the blood also indicated improvement. From this and the observations of others in fatal cases there seems to be a rather definite correlation between the extent of fatty degeneration and the results of the blood chemical tests. Stander 18 reported a fatal case which was more severe but otherwise similar to ours. One of the cases reported by Baens and Espinola 19 also was similar.

Sheehan ²⁰ reported 6 fatal cases very similar, if not identical, to this one as a separate entity apart from true acute yellow atrophy and suggested the name obstetric yellow atrophy. We are not willing to do this on the basis of present knowledge, because the clinical course is identical, and the location and general type of lesion are the same. We may have to change our conception,

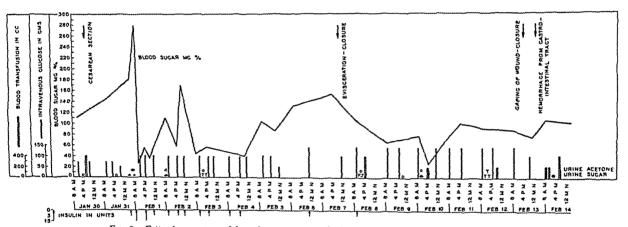


Fig. 9.—Fatty degeneration of liver in pregnancy. Blood sugar, devtrose therapy and transfusion.

of the retinal vessels. The irregular heart beat persisted throughout the course of the disease. An electrocardiogram taken on March 7 suggested myocardial damage, while a subsequent examination on March 19 was normal. The bromsulphalein and hippuric acid tests repeatedly showed impairment of liver function until March 7.

### COMMENT

The demands on the liver are especially insistent in the last half of pregnancy. This patient had not been eating well for ten days. An infection of the upper part of the respiratory tract in the presence of impaired liver function may well have been the etiologic factor.

The importance of early recognition and treatment of this condition cannot be overemphasized. Too little attention is frequently given to mild symptoms. The occurrence of fatigue and loss of appetite in a woman near term is significant. With the appearance of icterus, investigation is indicated, and, if drowsiness ensues, the diagnosis of liver damage is almost certain. The life of the patient depends on vigorous treatment with dextrose and termination of the pregnancy by the most conservative means. Also the many and timely blood transfusions contributed to the recovery of the patient.

It will be noted that the area of fatty degeneration involved three fourths to four fifths of the liver lobules in the first biopsy, at the time when the blood chemistry but at this time it seems to be a matter of degree; that is, acute fatty degeneration of the liver is one stage in the process of necrosis. It seems reasonable to conclude that the dose of the hormone, toxin, poison, infection or combination of these factors could be insufficient to cause actual necrosis but still be sufficient to be usually fatal.

The cause of both ascites and hemorrhage from the upper part of the gastrointestinal tract was not clear. There was no cirrhosis of the liver to account for these conditions. The renal function as determined by the phenolsulfonphthalein test was normal. The ascites in this case might have been due to the extremely low level of serum albumin. The hematemesis was probably not caused by varices. The duodenal tube did not cause the bleeding, as it continued after the tube was withdrawn and stopped after the tube had been replaced. Penner and Bernheim 21 explained bleeding of this nature in cases of shock due to peritonitis, diabetic acidosis, hemorrhage or operation on the basis of a

^{18.} Stander, H. J., and Cadden, J. F.: Am. J. Obst. & Gynec. 28: 61 (July) 1934.
19. Baens, Alfredo, and Espinola, Noc: J. Philippine Islands M. A. 17: 679 (Nov.) 1937.
20. Sheehan, H. L.: J. Obst. & Gynaec. Brit. Emp. 47: 49 (Feb.)

<sup>1940
21.</sup> Penner, Abraham, and Bernheim, A. I.: Acute Postoperative
Esophageal, Gastrie and Duodenal Ulcerations: Further Study of Pathologic Changes in Shock, Arch. Path. 28: 129 (Aug.) 1939.

resuscitation procedures following failure of some other method. A brief report 1 on the phenomenon of asphyxial resuscitation will appear shortly.

### COMMENT

In a paper reporting physiologic studies in experimental asphyxia and drowning, Lougheed, Janes and Hall ² state (p. 426):

Asphyxia may be maintained for only a comparatively short period of time if recovery is to take place. This time varied with the individual animal but rarely exceeded four minutes;

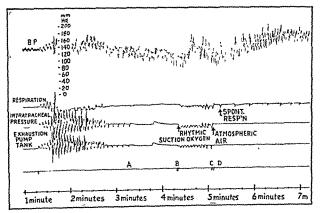


Fig. 7 (dog 22).—Nitrogen inhalation asphyxia by way of intratracheal tube: A, respiration ceases. B to C, rhythmic suction at 8 mm. of mercury pressure with oxygen inhalation. D, spontaneous respiration.

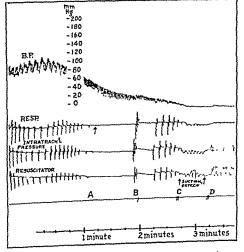


Fig. 8 (dog 22).—Nitrogen inhalation asphysia by way of intratracheal tube: A, respiration ceases. B to C, asphysial gasps. C to D, rhythmic suction at 8 mm. of mercury pressure with oxygen inhalation fails to resuscitate. D, resuscitator with oxygen fails to resuscitate.

in some animals recovery has occurred after the trachea has been clamped for seven minutes, while other animals failed to recover after temporary asphyxia of two minutes' duration. Another interesting feature was observed in the time interval between the cessation of respiratory efforts during asphyxia and the cessation of expulsive cardiac beats. This interval varied only from eleven to seventeen seconds. If the asphyxia was maintained four or five seconds longer, resuscitation was of

1. Artificial respiration: Asphyxia was maintained by clamping the trachea for varying periods of time. As noted in the

previous section, the periods of asphyxia after which recovery would take place depended upon the critical interval after the cessation of the respiratory efforts (eleven to seventeen seconds). If the asphyxia was relieved during this short period, spontaneous recovery took place in the great majority of cases. If, however, the asphyxia was maintained for slightly longer

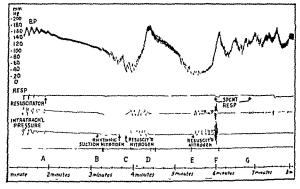


Fig. 9. (dog 20).—Nitrogen inhalation asphyxia by way of intratracheal tube: A, respiration ceases. B to C, rhythmic suction at 8 mm, of mercury pressure with nitrogen inhalation; blood pressure continues to fall. C to D, resuscitator with nitrogen. E to F, resuscitator with nitrogen started again F, spontaneous respiration.

periods of time (even a few seconds) spontaneous recovery did not take place. In this period where spontaneous recovery did not occur, artificial respiration if instituted immediately practically always resulted in successful recovery. The longer the period of asphyxia, the longer artificial respiration had to be maintained. It must be emphasized, however, that successful artificial respiration was possible only when started within a few seconds after the time when spontaneous recovery could take place. Precisely the same criteria had to be applied in the cases where asphyxia was produced by experimental drowning.

As a result of our experiments we consider that prompt, adequate and prolonged artificial respiration is the fundamental treatment for drowned, asphyxiated or electrocuted persons. In the case of drowning the additional procedures as outlined above are recommended for the reasons stated.

Our findings support the view that manual artificial respiration must be instituted early to effect resuscitation when the respiration has ceased. However, in a

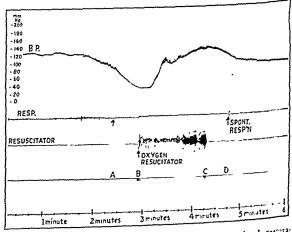


Fig. 10 (dog 5).—Nitrogen inhalation asph) xia at the misk: A, respection ceases. B to C, resuscitator with oxygen; notice the sharp recovery of blood pressure by resuscitator in contrast to the slow recovery by manual artificial respiration (fig. 1). D, spontaneous respiration.

few instances manual artificial respiration with oxygen was effective after a longer period of time following cessation of respiration than the critical period of Lougheed, Janes and Hall. Likewise, resuscitation with

^{1.} Thompson, S. A., and Birnbaum, G. L.: The Phenomenon of Asphyxial Resuscitation; Resuscitation with Inert Asphyxiating Gases, Prehiminary Report, Proc. Soc. Exper. Biol. & Med. 48; 203-204, 1941.
2. Lougheed, D. W.; Janes, J. M., and Hall, G. E.: Physiological Studies in Experimental Asphyxia and Drowning, Canad. M. A. J. 40: 423 (May) 1939.

rhythmic insufflation of oxygen was possible at a longer period after the cessation of respiration. Rhythmic inflation and suction of oxygen was by far the most effective of the methods and at very much longer periods after cessation of respiration.

We have merely touched on the subject of resuscitation with inert (asphyxiating) gases. In subsequent papers of the series this phenomenon and its mechanism will be taken up in detail. It will then become even more evident that the suck and blow mechanism, within safe limits of pressure, rests on sound physiologic principles.

Henderson and Turner 3 have found that suck and blow mechanism, using pressures of plus 15 and minus 15 mm. of mercury, could do no serious harm to the lung. However, they believe that manual artificial respiration is more effective than mechanical resuscitation.

Manual artificial respiration is a valuable procedure and should be immediately instituted when the respiration has ceased and continued until respiration returns or until other and more efficient facilities are available. We have found, however, that positive-negative resusci-

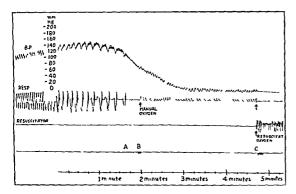


Fig 11 (dog 11) — Mechanical obstruction asphysia at the mask A, respiration ceases B to C, manual artificial respiration with oxygen inhalation fails C, resuscitator with oxygen fails.

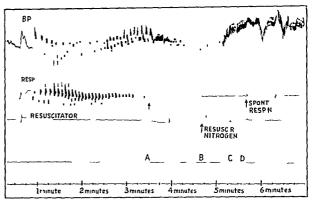
Summary of One Hundred and Siv Experiments with Different Resuscitative Procedures

_	Ovigen			Nitrogen		
-	Suc cess	Fail ure	Per- centage Suc- cess	Suc-	Fail ure	Per centage Suc cess
Manual artificial respiration	6	5	55	1	6	15
Rhythmic inflation .	7	2	78	2	10	17
Rhythmic suction Resuscitation (rhythmic in	4	1	80	1	4	20
flation and suction)	21	1	95	30	5	85

tation is superior to manual artificial respiration as a life-saving measure. Another feature of positive and negative resuscitation is its efficacy in advanced asphyxia with cardiac failure. We have been able to resuscitate the circulation and respiration many times by a combination of mechanical resuscitation with oxygen plus heart massage; these data will be reported in another paper.

When in asphyxia the respiration has ceased, rhythmic inflation and suction of the lungs at the pres-

sures used gives a distinctly greater pulmonary ventilation than manual artificial respiration or rhythmic inflation. Overventilation and acapnia (carbon dioxide deprivation) is eliminated as a possibility by the addition of 5 to 7 per cent of carbon dioxide to the oxygen.



11g 12 (dog 37) — Mechanical obstruction asphysia by clamping initia tracheal tube the phenomenon of asphysial resuscitation (resuscitation with inert gas): A, respiration ceases B to C, resuscitator with nitrogen, notice recovery of blood pressure D, spontaneous respiration occurs, animal now allowed to breath atmospheric air.

Moreover, before respiration has resumed, rhythmic resuscitation with positive and negative pressure does not depend on muscle tonus of the respiratory muscles (as do manual artificial respiration, rhythmic inflation alone or rhythmic suction alone) for adequate pulmonary ventilation.

While it is true that mechanical suck and blow resuscitation may work "out of step" with the breathing animal, we advise the use of a resuscitator only when the respiration has failed; when respiration is still going on, inhalation of oxygen or oxygen-carbon dioxide is indicated. When respiration has been restored and acts "out of step" with a mechanical resuscitator, it indicates the successful return of spontaneous respiration and it is time to desist from the use of mechanical resuscitation and to use inhalation.

### CONCLUSIONS

1. In advanced asphyxia, after cessation of respiration, rhythmic inflation and suction of oxygen or oxygen-carbon dioxide at safe pressures is definitely

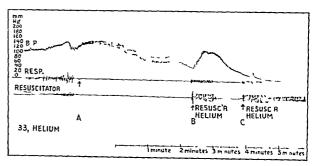


Fig. 13 (dog 33)—Helium inhalation asphyxia by way of intratracheal tube A, respiration ceases B, resuscitator with helium started three and a half minutes after cessition of respiration, a rise and then a fall of blood pressure occurs when the resuscitator is stopped C, resuscitator with helium started again; failure to resuscitate

superior to manual artificial respiration or rhythmic inflation.

2. Rhythmic inflation and suction regularly produce resuscitation even with inert (asphyxiating) gases.

J. Henderson, Yandell, and Turner, J. McC: Artificial Respiration and Inhalation. The Principle Determining the Efficiency of Various Methods, J. A. M. A. 116: 1508 (April 5) 1941.

# Clinical Notes, Suggestions and New Instruments

SEVERE ARSENICAL REACTION ENCOUNTERED IN THE FIVE DAY TREATMENT FOR EARLY SYPHILIS

> HERBERT RATTNER, M.D., AND ALFRED B. FALK, M.D., CHICAGO

This is to record the first serious reaction affecting the kidneys, liver and heart from the use of mapharsen in the treatment of early syphilis by the five day massive dose method. One of the significant facts noted in our experience of 348 patients treated by this method, and among the 1,150 r or more patients treated similarly by the Middle Western Cooperative Group, has been the lack of serious damage to important parenchymatous organs. There have been reports of several cerebral accidents,2 some of them fatal, and minor side effects have been encountered frequently-nausea, emesis, headache, fever, painful arms and toxic eruptions. Aside from transitory albuminuria and a slight elevation of the icteric index, however, there have been no reports of a reaction in which the toxic manifestations were those of an acute glomerulonephritis, anuria, uremia, hepatitis, ileus and pericarditis.

#### REPORT OF CASE

A Negro aged 23 had a penile chancre of four weeks' duration from which Treponema pallidum was demonstrated and a papular syphiloderm of the body of one week's duration. The blood tests gave strongly positive reactions with a quantitative titer of 40 Kahn units. Except for an attack of typhoid in 1933, he had had no previous illnesses. His general physical condition was excellent. The laboratory studies, which included a complete blood count, blood chemical determination, urinalysis including a urobilinogen determination, icteric index determination and a roentgenogram of the chest, gave results that were



Fig. 1.-Appearance of the patient during the acute phase of his

within normal limits. For these reasons it was decided that his condition was suitable for the intensive five day treatment by the intravenous drip method.

From the Department of Dermatology, Cook County Hospital, and the Department of Public Health, State of Illinois, R. R. Cross, M.D., Director, and Herman Soloway, M.D., Venereal Disease Control Officer; with the cooperation of the United States Public Health Service.

1. Information supplied by D. C. Elliott, M.D., United States Public Health Service.

2. Leifer, William: Chargin, Lonis, and Hyman, H. T.: Massive Dose Arsenotherapy of Early Syphilis by the Intravenous Drip Method, D. A. M. A. 117: 1154 (Oct. 4) 1941. Elliott, D. C.: Baebr, George; Shaffer, L. W.; Usher, G. S., and Lough, S. A.; Massive Dose Therapy of Early Syphilis, ibid. 117: 1160 (Oct. 4) 1941.

Throughout the first day of treatment he along with 4 others undergoing treatment at the same time experienced some discomfort from nausea, emesis, headache and pain in the arm, but he was able to take the full dose for the day of 0.24 Gm of mapharsen dissolved in 2,000 cc. of 5 per cent dextrose solution. In the evening the emesis became more frequent and he became lethargic. The following morning there was a large quantity of albumin in the urine; later in the day be



I ig. 2 .- Appearance of the patient one month later.

ceased to void, and during the next eighty hours there was complete anuria and the gradual development of edema of the face. Then dyspnea and orthopnea developed and later moist rales were heard in the base of the left lung. On the fourth day he suffered a generalized convulsion, and after a few hours uremic frost appeared on the nasolabial folds. By this time he was voiding only 500 cc. of urine, which still contained albumin and red blood cells. The nonprotein nitrogen nat 170 mg. per hundred cubic centimeters and the creatinine was 16.8 mg, per hundred cubic centimeters.

On the sixth day there was evidence of hepatitis-enlarged liver, icteric scleras and an icteric index of 25-and bothersome singultus and emesis which persisted for two weeks. Heus developed on the ninth day, and there was considerable distention for forty-eight hours. Then on the eleventh day there appeared a pericardial rub which persisted for three weeks Despite the later developments, the general well-being of the patient seemed to improve after the first week. There was 17 precordial pain and he was now voiding 2,000 cc. of urine in twenty-four hours.

He received treatment with digitalis, adrenal cortex extract (eschatin), a prostigmine compound, blood plasma, isotonic ard hypertonic fluids intravenously, deep diathermy administered over the renal areas, suction with a Wangensteen apparatus and various other supportive measures.3

The patient five and one half months after the reaction show no effects of it whatever. The blood test gave a negative reaction on the tenth week and has remained negative.

### SUMMARY

A case was seen in which acute glomerulonephritis, amuria. uremia, hepatitis, ileus and pericarditis developed from the nee of mapharsen in the treatment of early syphilis by means of the intensive five day treatment method. It is the first such reaction encountered among some 1,150 patients treated similarly by the Midwestern Cooperative Group. The patient recovered from the reaction. We have had no fatalities in 348 cases treated by this method.

### 25 East Washington Street.

^{3.} Drs. A. B. Rimmerman and Arthur Bernstein of the red cal star of the Cook County Hospital helped in the management of the farmand, after further observations, will report on the medical aspects of the case.

BASAL METABOLISM IN THE SAME PERSON AFTER AN INTERVAL OF FIFTY YEARS

ADOLF MAGNUS-LEVY, M.D., NEW HAVEN, CONN.

My basal metabolism was first examined in Zuntz's laboratory in 1891 at the age of 26 years. When I was 76 I had the opportunity of having it reexamined by Dr. Walter A. Boothby when I was at the Mayo Clinic in 1941 to give a lecture. During the interval, no measurements were made. Although the figures reveal nothing new, it might be of interest to publish them since they are unique.

The decline of basal metabolism with advancing age, established by Falk and Magnus-Levy, has been subsequently confirmed by a number of workers. Du Bois 2 quotes values of 39.5 calories per square meter per hour at 20 to 30 years and 35.5 calories per square meter per hour at 70 to 76 years, a decrease of 10 per cent.

decrease of 10 per cent

My record is given in table 1.

The values for surface area are based on Du Bois's formula. The decline in weight has been 7.5 Kg. and is most probably due to dwindling of the musculature, since my fat tissue has always been scarce and since my muscles, which are still firm, were exceedingly well developed and well trained in my youth. The decrease in energy output when expressed in

Table 1.—Basal Metabolism of the Author

Re- Oxy- Carbon spira-						Sur-	(	Calorio	25	
Year		gen,	Dioxide, Ce. per Min.	tory	Height, Cm.		face		Kg. per Hr.	Sq. M. per Hr.
1891 1941 Differ	26 76	231.3 176.0	192.5 158.4	0.83 0.90	167.0 165.5	67.5 60.0	1.76 1.65	67 52	0.99 0.87	38.1 31.5
ence	50	-24%				11%	6%	22%	-12%	-17%

TABLE 2.—Basal Metabolism of Five "Professors"

			Deviation	n from Standard Curve			
"Professors"	Age, Yrs.	Calories, Sq. M. per Hr.	Auh- Du Bois, ³ per Cent	Mayor Clinic (Boothby 5), per Cent	Harris- Benedict, ⁵ per Cent		
Zuntz 1	41 70	33.6 30.2	14 16	13	7		
Magnus-Levy	26 76	38.1 31.5	- 4 11	- G	2		
Lusk 5	44 58	42.8 32.7	+11 12	+13 9	+24 9		
Benedict 5	38 57	38.2 32.7	- 3 -12	1 9	+ 6		
Du Bois 5	30 58	38.1 34.5	- <del>1</del> - 7	- 4 - 4	4 4		

calories per square meter per hour has been 17 per cent: 38.0 to 31.5. These figures are below the Aub and Du Bois 3 standard both in youth (—4 per cent) and in old age (—11 per cent). I was not subjected to undernourishment in Germany in either 1939 or 1940. My blood pressure is 170 systolic and 80 diastolic and my pulse rate is 40 per minute. The latter has always been low, having been less than 50 for twenty to thirty years.

There have been metabolism figures published for another "old professor," my beloved teacher Nathan Zuntz.4 His seventieth year is compared to his forty-first and sixty-third years. The figures for weight, and its decline, are almost identical with mine, as are also those of oxygen intake and calories per square meter per hour, if one calculates them according to Du Bois's formula instead of Mech's formula, which was used by Zuntz himself. From 41 to 63 years of age his oxygen consumption and energy output varied only slightly, i. c. within a range of a few per cent. At 70 there

From the Department of Physiology, Yale University School of Medicine.

1. Falk and Magnus-Levy, Adolf: Arch. f. Anat. u. Physiol., suppl., 1899, p. 314.

2. Du Boix, E. F.: Basal Metabolism in Health and Disease, Philadelphia, Lea & Febiger, 1936.

3. Aub. J. C., and Du Boix, E. F.: Clinical Calorimetry, Arch. Int. Med. 19: 823-831 (May) 1937.

4. Zuntz, Nathan, and Loewy, Adolf: Berl. klin. Wehnschr. 53: 825-829, 1916; Biochem. Ztschr. 90: 244-264, 1918.

had occurred a decrease of 10 per cent in weight, of 15 per cent in oxygen consumption and of 13 per cent in the output of calories when expressed in terms of surface area. Zuntz, without referring to old age, ascribed the decline exclusively to undernutrition during the World War (1916-1917). That period, however, affected him only in a limited way, even though it influenced Loewy, then only 53 years of age, tremendously.

Table 2 presents the figures for a number of "professors" 5 and shows their deviation from several standard curves.

# Council on Pharmacy and Chemistry

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT.

Austin E. Smith, M.D., Acting Secretary.

The Council on Pharmacy and Chemistry of the American Medical Association records with deep sorrow the death, Jan. 31, 1942, of

Soma Weiss

On January 31 Soma Weiss died at the age of 43 of a spontaneous subaraclinoid hemorrhage. In his premature death the medical profession lost one of its greatest leaders. He was a persuasive and stimulating teacher, a resourceful clinician, a brilliant investigator whose interests and contributions extended to the most diverse fields of medical science. Few men have exerted so great an influence or have been so admired and beloved. To his clinic went many of the most able young men in this country. He offered them the wealth of his clinical experience and the stimulation of his constructive imagination. He was their counselor and friend. No one of them departed without enthusiasm or without the desire to contribute to medical teaching and to the advancement of medical science. Today many of his former interns and residents are leaders in their own right and are carrying to others the light which they received from him.

To the work of the Council on Pharmacy and Chemistry Soma Weiss brought a unique experience. While still a young student in Hungary he served for three years as a Research Fellow in Physiology and Biochemistry at the Royal Hungarian University in Budapest. He left Hungary mainly because the disturbed political condition offered a discouraging outlook for study and research. Almost immediately after his arrival in this country he became associated with Dr. Robert A. Hatcher, who was probably one of the first to recognize his remarkable capacity. For the next three years while still a student at Cornell he served as assistant in pharmacology and took an active and often a leading part in many important investigations. After graduation he went to Bellevue Hospital, where he continued his research work. This fundamental training and experience in pharmacology had a significant influence in all his subsequent investigations and clinical activities. At a time when the chief emphasis in teaching was on diagnosis and prognosis, Soma Weiss was one of the few clinicians who could bring exact pharmacologic knowledge to the bedside and who could utilize adequately pharmacologic technics in the vast field of practical therapeutics. At Bellevue, and later in the City Hospital and at Peter Bent Brigham Hospital in Boston, he was exposed to an immense amount of clinical material, which gave ample scope for the application of his methods. With such a background he was able to contribute first hand information concerning most of the problems which came for consideration to the Council on Pharmacy and Chemistry. His fellow members on the Council realize fully what a tremendous loss to medicine his death involves, but they feel also, and more keenly, the loss of a much beloved friend and a wise counselor to whom all freely turned for advice and help.

^{5.} The details are presented in:
Boothly, W. M.; Herkson, J., and Dunn, H. L.: Am. J. Physiol.
116: 463-484 (July) 1936.
Harris, J. A., and Benedict, F. G.: Carnegie Institution of Washington, Publication 279, 1919.
Luck, Graham, and Du Bois, E. F.: J. Physiol. 59: 213-216 (Oct.)
1924.

Benedict, F. G.: Am. J. Physiol. S5: 650-664 (July) 1928. Du Bois, E. F.: Personal communication to the author.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - "Medic, Chicago"

Subscription price - - - - Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, APRIL 18, 1942

# THE VENEREAL DISEASE PROBLEM IN WAR

Invariably in past wars there has been an increase in the rates for the venereal diseases. The Annual Report of the Surgeon General of the United States Army for the fiscal year 1941 shows that the venereal disease rate increased in the recent prewar period of mobilization from 29.6 per thousand men in 1939 to 42.5 per thousand men in 1940.

Infected persons in the civilian population, particularly prostitutes, are links in the chain of infection of the armed forces with syphilis and gonorrhea. Frequently the venereal disease rate in the Army and Navy is comparable to the incidence and prevalence of syphilis and gonorrhea in the civilian population in the area in which the armed forces are located. Therefore the civilian program for control of venereal disease must be maintained at the optimum effective level during war.

The War Department is preparing to meet this problem. A venereal disease control officer will be assigned to each corps area headquarters to stimulate work against venereal disease. Furthermore, army venereal disease control officers will be appointed to each command with a strength of more than twenty thousand men. These new control officers will work with health departments and other civilian agencies. Attempts will be made to examine all contacts with infected men and to treat those who are found infected. The program will also include the strengthening of prophylactic measures, the provision of more adequate physical inspection to detect venereal diseases early, improvement in methods for the diagnosis and treatment of infected military personnel, provision of additional recreational facilities in cooperation with other military agencies, and intensification of the educational program.

A cardinal principle of epidemiology in the control of communicable diseases is limitation of the number of contacts between infected, potentially infected and healthy persons. This principle applies in syphilis and gonorrhea as much as it does in other communicable diseases. Already there is evidence that some physicians

have placed in the hands of irresponsible prostitutes certificates with the connotation that these women are free from the venereal diseases. The scientific evidence available indicates that certification of this kind is worthless. Any local, municipal system that encourages such certificates trifles not only with the health of its civilian population but also with that of the Army and Navy.

# THE ADJOURNED MEETING OF THE 1940 PHARMACOPEIAL CONVENTION

On April 7 the adjourned session of the decennial U. S. Pharmacopeial Convention reconvened in Cleveland to permit discussion of proposed amendments to the constitution and by-laws. This meeting was in accordance with instructions given by the 1940 convention ". . . to meet at the call of the Board of Trustees to receive the report of the Committee on Constitution and By-Laws. . . ." The committee, which consisted of nine voting members of physicians, pharmacists and one representative of a governmental agency, had been charged with preparing a draft of the new constitution and by-laws promulgated at the 1940 convention. The object of the changes is to reduce the number of delegates to insure a representative delegation and to simplify the general methods of procedure for the convention proper.

The success of the meetings in Cleveland was largely due to the efforts of this committee and the understanding and cooperation of the board of trustees of the Pharmacopeia. This success was not marred by the knowledge that legal opinion had advised that amendments to the constitution could not be finally acted on until the 1950 decennial meeting of the convention. Although the by-laws could be voted on and adopted at the present meeting, none of the new by-laws could replace any of the terms of the present constitution concerning membership requirements, number of delegates or their appointment and terms of office, or the personnel elected at the 1940 meeting. The by-laws which existed at the termination of the latter meeting are effective until the 1950 meeting, but the new by-laws which were discussed and adopted in Cleveland will guide the organization and outcome of the 1950 meeting.

The constitution as read at the Cleveland session was simply received for presentation to the 1950 meeting. Of special interest are certain new statements in the by-laws. Under article II, membership, are the provisions "The members of the United States Pharmacopeial Convention shall consist of accredited delegates representing the following institutions and organizations, and designated divisions of the federal government.... Each institution, organization and designated division of the federal government entitled to representation in the United States Pharmacopeial Convention . . . shall be

VOLUME 118 NUMBER 16

entitled to one delegate or an alternate in the decennial meetings of the Pharmacopeial Convention. Each delegate or his alternate shall be an officer or member of the academic staff of the college or school, an active member of the association or society, or an employee of the division of the federal government which he represents. . . . A delegate shall not represent more than one college, school, association, society or division of the federal government."

Under the old by-laws, article I, chapter 5, there appeared the ambiguous statement "The General Committee of Revision shall consist of fifty members to be elected at the decennial meeting, together with the president of the convention, ex officio." At the recent convention the members voted that "The General Committee of Revision shall have a membership of sixty persons, of whom twenty shall be qualified in medical sciences and forty in pharmaceutical and allied sciences, together with the president of the Pharmacopeial Convention, ex officio, and the director of the Pharmacopeial Convention, ex officio."

Whereas former by-laws provided for the nominating committee to nominate the officers of the convention, the board of trustees and the general committee of revision, the new amendments state that the secretary of the nominating committee shall request all organizations entitled to representation to submit the names of individuals qualified for this work. Each submitted name must be accompanied by a statement depicting the qualifications of the nominee. Thus, when a delegate presents his credentials he will be offered a list of names of forty persons qualified in the medical sciences and eighty persons qualified in the pharmaceutical and allied sciences. Further nominations may be received from the floor and seconded by at least four delegates. At the final session of the decennial meeting, voting by ballot will be conducted.

No doubt such provisions as these will prevent a repetition of the confusion and doubtful motivations which prevailed in the 1930 assemblage. As the Pharmacopeia plays an ever increasingly important part in the enforcing of laws governing official drugs in interstate commerce, physicians and pharmacists should maintain their interest in providing the best pharmacopeia possible. Because of the significance of the Pharmacopeia to the practice of medicine the American Medical Association, through its Board of Trustees, its Council on Pharmacy and Chemistry and THE JOURNAL, has repeatedly urged efforts toward the development of a pharmacopeia most compatible with the needs of modern medicine. As we have stated before,1 the adoption of this new constitution and by-laws will be a step toward facilitation of work, discouragement of self seeking, and the maintenance of a scientific spirit.

# FEBRILE DESTRUCTION OF ANTIBODIES

A serious challenge to conventional theory on which fever therapy is based comes from the demonstration by Ellingson and Clark 1 of the University of Wisconsin that hyperpyrexia causes a significant lowering of specific antibody titer in experimental animals. 1908 Rolly and Meltzer 2 tested the influence of artificial fever on the resistance of rabbits to experimental bacterial infections. Groups of 2 or more rabbits were given repeated sublethal inoculations of pneumococci, staphylococci, Escherichia coli or Pseudomonas aeruginosa. One animal of each group was kept at room temperature to serve as a control and the others were confined to a heated chamber. All the control animals died of the repeated sublethal inoculations. Of the 11 febrile animals (rectal temperatures were not recorded) but 4 died. This was taken as proof that the febrile state increases antimicrobic resistance.

According to the orthodox side chain theory of the time, this increase could mean only that fever increases specific antibody titer. This presumptive logical deduction from their data was confirmed by experimental tests. For example, 2 rabbits which had been inoculated with a cholera vaccine and confined for nine days in a heated box showed specific agglutinin titers of 1:200 and 1:500, or an average of 1:350. Two control rabbits similarly inoculated but kept at room temperature each showed an agglutinin titer of 1:200. Their conclusion that hyperpyrexia accelerates specific antibody production was soon quoted in textbooks of pathology and clinical medicine and became the basis for the widely prevailing belief that fever is a wise provision of nature automatically increasing bodily defenses against invading micro-organisms.

Clinical interest in this conclusion, however, was not fully aroused till von Wagner-Jauregg 3 reported the beneficial effects of artificial malarial infection on tabes dorsalis and dementia paralytica. It was assumed that the resulting febrile state was responsible for the favorable results. This observation started a trend of clinical investigation and trial and led to the acceptance of artificial fever in the treatment of several infectious diseases.

The basic immunologic belief underlying this fever therapy, however, has not been without its critics. Ecker and O'Neal,4 for example, found that in rabbits immunized against typhoid vaccine the specific typhoid agglutinin titers were depressed fully one half as a result of hyperthermia. Hadjopoulos and Bierman 5 found that the complement fixing antibodies of rabbits previously immunized against pyogenic cocci were similarly depressed.

^{1.} The Pharmacopeial Convention of 1940, editorial, J. A. M. A. 114: 2116 (May 25) 1940.

^{1.} Eilingson, H. V., and Clark, P. F.: J. Immunol. 43:65 (Jan.) 1942. 2. Rolly, F., and Meltzer: Deutsches Arch. f. klin. Med. 94: 335,

^{1908.} 3. von Wagner-Jauregg, Julius: Psychiat-neurol. Wehnschr. 20: 132, 251, 1918-1919.

^{4.} Ecker, E. E., and O'Neal, M.: Am. J. Pub. Health 22: 1050, 5. Hadjopoulos, L. G., and Bierman, William: J. Lab. & Clin. Med.

None of the earlier experimenters or critics used a sufficiently large number of animals or a sufficiently wide range of antigens to render their data statistically significant. Ellingson and Clark therefore repeated the earlier tests on groups of at least 12 rabbits, selecting such typical antigens as sheep erythrocytes, egg albumin and Eberthella typhosa. One series of 12 rabbits, for example, was given three intravenous injections of 5 cc. of 10 per cent washed sheep cells on successive days. Six of these were kept at room temperature, and the others given a severe fever (41.6 C., or 106.9 F., rectal temperature) for periods of four hours on each of the three days of inoculation. The fever was caused by placing the rabbits in well ventilated incubators. Composite data showed that hemolytic amboceptor was produced by both subgroups by the sixth day. In both groups the titer increased to a maximum by the twelfth day and then decreased, till about 50 per cent of the amboceptor had disappeared by the twentieth day. Throughout this process, however, the average titer of the fever group was but half that of the nonheated controls. Thus on the twelfth day the average control titer was 6,400 units of amboceptor, with but 3,840 units present in the febrile animals.

Even more striking differences were seen in the series of 12 rabbits given seven intravenous injections of typhoid vaccine. In this series the injections were made on alternate days. A rectal temperature of 41.5 C. (106.7 F.) was induced in half of the animals for eight hour periods daily for twenty-two days. Throughout the observation period of fifty-seven days the average titer of the febrile animals was rarely more than onefourth that of the unheated controls. Thus on the twentieth day the average febrile typhoid agglutinin titer was 1:832, as contrasted with an average of 1:2,133 in the normal controls. On the fifty-seventh day the averages had fallen to 1:76 and 1:266 respectively. An equally striking febrile reduction in specific precipitin formation was recorded for groups of rabbits immunized against crystallized egg albumin.

Certain groups of previously immunized rabbits were given fever therapy for an eighteen hour period and examined immediately after this treatment. The average agglutinin titer was reduced three fourths by this heating. Under the influence of a daily fever the titer of these rabbits was further reduced to one eighth of the original by the eighth day. This febrile destruction of specific antibodies was also noted in groups of rabbits passively immunized against the typhoid bacillus.

From these data it would seem that artificial fever not only inhibits specific antibody formation but accel-The fact that artificial erates antibody destruction. fever reduces antibody titer, however, does not justify the conclusion that fever therapy is without beneficial Carpenter and his associates,6 for example,

6. Carpenter, C. M.; Boak, Ruth A.; Mucci, L. A., and Warren, S. L.; J. Lab. & Chn. Med. 18:981 (July) 1933.

have demonstrated that fever temperatures may actually kill gonococci and the spirochete of syphilis. Dyson 7 and Shaffer 8 have shown that the rate of proliferation of hemolytic streptococci and pneumococci is greatly reduced at temperatures above 40 C. (104 F.). Moreover, circulation may be stimulated and capillary permeability increased by hyperpyrexia, so that local toxic products may be more rapidly neutralized, diluted or removed, in spite of reduced antibody titer.

Finally, it is definitely known that the phagocytic power of leukocytes is increased by febrile temperatures. Ellingson and Clark, for example, found that the maximal phagocytic activity of guinea pig leukocytes is noted between 39 and 41 C. (102.2 and 105.8 F.), the usual fever range in these animals to infectious processes. Rolly and Meltzer found that with human leukocytes phagocytosis is greatest at fever temperatures (39.5 to 40 C., or 103.1 to 104 F.), an observation confirmed by the Wisconsin bacteriologists, who found that the increased phagocytosis even continues till the temperature reaches 41 C. (105.8 F.).

The fact that artificial fever causes a reduction in the titer of all circulating antibodies must be taken into account in future clinical studies of this method of clinical therapy. Whether there is a parallel reduction in the nonhumoral or fixed tissue defenses has not yet been determined, a determination that might have particular significance in virus disease.

### MEDICAL-PHARMACEUTICAL CONFERENCE

THE JOURNAL has drawn attention previously to the Cleveland medical-pharmaceutical conference.1 A historic and important step was taken to further professional relations between medicine and pharmacy when the conference met on April 6. More than two hundred pharmacists and physicians assembled to hear and discuss papers delivered by Dr. Howard Dittrick, practicing physician of Cleveland, E. F. Kelly, Phar.D, Secretary of the American Pharmaceutical Association, and Robert C. Wilson, dean of the School of Pharmacy, These papers, which were University of Georgia. entitled "Evolution of the Apothecary," "Trends of Pharmaceutical Practice" and "Objectives of the Program of Pharmaceutical Education," were provocative and elicited excellent discussions. Those who participated in the discussion included Dr. Morris Fishbein, Chicago; P. H. Costello, Cooperstown, N. D.; Charles H. Rogers, Minneapolis; Carson P. Frailey, Washington, D. C.; E. Fullerton Cook, Phar.D., Philadelphia; Wortley F. Rudd, Richmond. Va.; A. G. DuMez, Baltimore; Robert L. Swain, New York; Max Lemberger, Milwaukee; Dr. Theodore G. Klumpp, New York, and Dr. Allen H. Bunce, Atlanta, Ga.

^{7.} Dyson, C. B.: J. Path. & Bact. 47:641 (Nov.) 1939.

8. Shaffer, M. F.: Enders, J. F., and Wilson, James: J. Chr. Izr.

17:133 (March) 1938.

1. Medical-Pharmaceutical Conference, Current Comment, J. A. M. A.

118:900 (March 14), 1145 (March 28) 1942.

The evening session included a dinner, with an address by Dr. Morris Fishbein entitled "Status of Medicine and Pharmacy In the War and After," and a formal discussion which was opened by Col. W. L. Fox of the Army Medical Corps, Fort Knox, Kentucky, and Dr. Walter A. Bastedo and Dr. Cary Eggleston of New York.

This joint meeting of the American Medical Association and the American Pharmaceutical Association is historic in that it is the first of its kind in the history of these two organizations. Agreement was general that the appropriate representatives of each association carry back a report of the meeting to their respective board of trustees, with the request that consideration be given to arranging another similar session. While the current meeting resolved itself into one of good will, a further meeting might serve as a basis for more concrete steps to improve medical-pharmaceutical relations and to orient certain common problems.

### Current Comment

# HAZARDOUS OCCUPATIONS FOR YOUNG WORKERS

The Fair Labor Standards Act of 1938 established a 16 year minimum age for employment in plants manufacturing goods for shipment in interstate commerce and also provided for the establishment of an 18 year minimum age in any occupation found and by order declared to be particularly hazardous for the employment of minors by the chief of the Children's Bureau of the U.S. Department of Labor. Reports and orders already issued by this bureau have dealt with the manufacture of explosives, driving of motor vehicles or serving as helper, coal mining, logging and sawmilling and the operation of wood working machines. Recently a sixth in this series of reports on occupations hazardous to young workers has been issued on radioactive substances, under the guidance of a distinguished list of medical and technical advisers. The recent review is concerned mainly with exposures and working conditions in plants preparing or applying self-luminous dial paint which is crystalline zinc sulfide activated by radium or in plants manufacturing incandescent mantles which are made from rayon mesh fabric dipped in "lighting fluid," a 25 to 50 per cent solution of 99 parts of thorium and 1 part of cerium nitrates. Surveys have demonstrated that unsafe practices persist, although the tragic custom of lip pointing brushes used in dial painting is no longer observed. Investigation in a plant regarded as representative showed concentrations of radioactive gas up to four times the most liberal recommended maximum permissible limit. Every one with substantial knowledge of these industrial processes, including the employers, concurs in the opinion that minors under 18 years of age should not be engaged in work of this description. They are not so likely to possess the qualities of carefulness, neatness, forethought and attention to personal hygiene essential to the observation of safe

practice. Hearings will no doubt corroborate the findings in this report; an order will then be issued which will have the effect of eliminating exposure of this kind at least as far as minors under 18 years of age are concerned.

### KOCH'S CANCER TREATMENT MEETS THE LAW

THE JOURNAL has repeatedly 1 called attention to the promotion of products by the Koch Laboratories. Again and again it has urged federal agencies to display an interest in the matter. The Detroit Free Press for Sunday, April 5, notes that "Federal agents took action Saturday against Koch Laboratories, Inc., 8181 E. Jefferson, by arresting Louis Koch, the concern's secretary treasurer, in Detroit and Dr. William F. Koch, president, in Delray Beach, Fla." It notes that the Kochs "will face charges of violating the Federal Food, Drug and Cosmetic Law on 11 specific charges." The Free Press reports that Dr. Koch was arrested on a removal warrant and was released on a \$5,000 bond pending a hearing in Detroit on April 15. Assistant United States Attorney John C. Ray is quoted as saying with regard to the concern's synthetic antitoxin "A thimbleful of this liquid sells for \$25 to practitioners and they get as much as \$300 from patients. Chemical analysis shows that the dilution is so infinitesimal that it would be like dumping a cocktail in the Detroit River at the foot of Woodward and expecting to get a kick out of the water going over Niagara Falls." The Free Press reports that "Doctors said it was something like a molecule, so tiny that it can't be seen, to every 300,000,000 gallons of water." The United States Attorney, it is reported, said that the Koch brothers were arrested after a prolonged investigation. The Free Press called attention to the fact that "Dr. Koch was named defendant in a malpractice suit in Detroit in 1934 and a jury returned a \$25,000 verdict against him while he was head of the Koch Cancer Foundation. Later the verdict was held excessive and in a second trial a jury reduced the amount to \$5,500. The suit was started by Alfred A. Fortner, who told the jury Dr. Koch diagnosed an infected knee as a cancer." ² The procedure of diagnosing as cancer a condition which is not malignant, and then expediting an effective treatment, is old in cancer quackery. For a number of years Koch has issued promotional material which contained reports of an unscientific character with regard to cases in which his preparations had been employed. More recently he circularized physicians with regard to what he refers to as "1:4 Benzoquinone," claiming, without the slightest bit of scientific reference, as noted in the most recent reference below,1 that it is the effective ingredient in the sulfonamide preparations. Besides Koch there still remain a few other charlatans in the field of cancer who merit federal attention. Perhaps the Koch incident will seem to them a "handwriting on the wall."

^{1.} J. A. M. A. 76:466 (Fcb. 12), 537 (Fcb. 19) 1921; 82:2054 (June 21) 1924; 86:1469 (May 8) 1926; 88:928 (March 19) 1927; 89:296 (July 23) 1927; 106:2189 (June 20) 1936; 107:519 (Aug. 15), 1405 (Oct. 24) 1936; 112:1400 (April 15) 1939; 116:2525 (May 31) 1941; 117:216 (July 19) 1941; 118:734 (Fcb. 28) 1942. 2. J. A. M. A. 102:116 (July 14) 1934; 106:929 (March 14) 1936.

# MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

# GOVERNMENT TO PAY FOR HOSPITALIZATION OF CIVILIANS INJURED BY ENEMY ACTION

Surgeon General Thomas Parran, U. S. Public Health Service, and Dr. George Baehr, Chief Medical Officer, Office of Civilian Defense, have issued a joint memorandum on details of the program of the government's paying for temporary hospitalization for civilians injured as a result of enemy action, The funds have been allocated to the U.S. Public Health Service from the President's Emergency Fund. The federal government will reimburse all hospitals caring for civilian casualties in the event of air raids or other enemy action at the rate of \$3.75 a day. Any hospital in the nation, voluntary or governmental, may be used as a casualty receiving hospital in the Emergency Medical Service established by the Office of Civilian Defense. Certain institutions in "safe areas" may be used as emergency base hospitals for casualties or other patients whom it may be necessary to evacuate from urban hospitals in exposed areas. For this purpose federally owned equipment may be lent to the base hospital, and their staffs will be supplemented by physicians of the area, who will be commissioned in the reserve corps of the U.S. Public Health Service. The management and control of all such hospitals will remain the responsibility of the local or state authorities. In the establishment of emergency base hospitals, hospitals are now being surveyed and will be classified on a basis of size, equipment and standards of operation.

The organization of medical staffs for base hospitals as units affiliated with casualty hospitals will begin immediately. The physicians and dentists commissioned in the Public Health Service Reserve for service in these hospitals will receive the rank, pay and allowance equivalent to those of the medical corps of the army and will be selected from older age groups, from physicians with disabilities that make them ineligible for military service and from women physicians. They will be assigned to service in regions in which they live as far as possible and will be recruited from the stations of civilian hospitals and cleared through the Procurement and Assignment Service.

# DECONTAMINATION OF EYES AFTER EXPOSURE TO LEWISITE AND MUSTARD

The Medical Division of the Office of Civilian Defense, Washington, D. C., submits the following information:

Since publication of the Office of Civilian Defense handbooks "First Aid in the Prevention and Treatment of Chemical Casualties" and "Protection Against Gas," further experience has shown that the 2 per cent solution of hydrogen peroxide recommended for the treatment of eyes following lewisite burns may be injurious if used undiluted. The Chemical Warfare Service now recommends a single instillation in the eyes of a 0.5 per cent solution of hydrogen peroxide as soon as possible after contamination with lewisite. This solution may be prepared by diluting one part of a 2 per cent solution with three parts of water, or one part of a 3 per cent solution with five parts of water. The solution usually found in drug stores is the U. S. P. strength of 2.5 to 3.5 per cent hydrogen peroxide. A 0.5 per cent solution of potassium permanganate has also been found effective as an eye instillation following exposure to lewisite.

In planning decontamination stations, the Medical Division, Office of Civilian Defense, recommends that provision be made near the entrance of the second or shower room for the irrigation of the eyes of contaminated persons. The schematic sketch

of a decontamination station in the Office of Civilian Defense publications mentioned shows the irrigation of eyes in the dressing room, whereas this should be carried out in the second or shower room before the bath is given. Delay until the casualty reaches the dressing room will result in more serious injury to eyes which have been contaminated with mustard gas or lewisite.

### PROTECTION OF HOSPITALS

A special committee of the American Hospital Association collaborating with the Medical Division of the Office of Civilian Defense has published in bulletin form "Protection of Hospitals," which had been previously published in hospital journals in order to make its contents immediately available. The Bulletin, No. 3, has diagrams showing how sand bag barricades can be used for temporary reinforcement, tells how to protect windows without cutting off ventilation, describes methods of blackout and has a section on protection against fire in which various types of incendiary bombs and methods of fighting them are described. The bulletin discusses also the protection of patients, personnel and building fabrics, air raid shelters, rescue squads, protection of utilities and facilities for the care of casualties.

### THE ARMY NURSE CORPS

The Congress of the United States authorized the formation of the Army Nurse Corps on Feb. 2, 1901. However, women nurses figured in military history of the United States as far back as 1776, and when military surgeons in 1847 were first given rank as officers they were allowed to appoint the nurses required in their individual hospitals and to fix the compensation. Legislation in 1861 gave a definite place to women nurses and fixed their compensation at 40 cents a day and rations. During the Civil War there were 3,214 regularly appointed hospital nurses and in addition an unknown number of unpaid volunteers. They were then under the supervision of Miss Dorothy Dix. Between the Civil War and the Spanish-American War, nursing in the army was done entirely by men. When the United States entered the first world war, the Army Nurse Corps comprised 403 nurses, but within eighteen months the corps had increased to 21,480 nurses, most of whom were reserves called to active service through the American Red Cross; 10,400 of these nurses were sent overseas to serve in England, France, Belgium, Italy and Siberia. They served in various kinds of military hospitals, hospital trains and transports, and even with surgical teams in field hospitals. In 1920, in an amendment to the National Defense Act, Congress provided relative rank for members of the Army Nurse Corps and later retirement for length of service and for disability in line of duty.

To be eligible for an appointment in the Army Nurse Corps, the nurse must be between 22 and 30 years of age, unmarried, a citizen, a graduate of an accredited high school and an approved school of nursing, and a registered nurse, at least 60 inches (152 cm.) in height and of standard weight for her acc and height. The commanding generals of the corps areas have authority to appoint nurses. The application must be accompanied by an unmounted autographed photograph taken within the preceding two years and a statement from an official of ite high school from which she graduated, giving the date and be numerical place in the class. The physical fitness of the applicant is determined by an examination by a board of medical officers at the nearest army post.

The pay of members of the Army Nurse Corps varies from \$840 a year with maintenance at the start to \$1,380 with main-

tenance after seven to nine years of service, and \$1,560 with maintenance thereafter. Nurses are appointed in the relative rank of second lieutenant, and promotion to the higher grades is determined by length of service, special qualifications and examination. The duties of a nurse in a military hospital are the same as those performed by a nurse in a civil hospital of like character, including night duty. The daily period of duty, as far as practicable, does not exceed eight hours.

A nurse may be retired from active service with pay after thirty years of service or, having reached the age of 50 years, after twenty years of service.

# LIAISON OFFICER AT MEDICAL FIELD SERVICE SCHOOL

Lieut. Col. Stanton Higgins, Cavalry, United States Army, has become a member of the faculty of the Medical Field Service School, Carlisle Barracks, Pa., as the first Armored Force liaison officer at this school, instruction in this field previously having been given by an infantry liaison officer. It is important that medical officers know where they fit into the present day complicated war machine and equally essential for liaison officers to understand the medical department's role. Lieutenant Colonel Higgins is a graduate of Yale, was first commissioned in 1917 and served in France in the twenty-sixth cavalry and the First Pursuit Group. He is a graduate of the advance course and the troop officers' course of the cavalry school at Fort Riley, Kan., and the armored force school at Fort Knox, Ky., and was professor of military science and tactics in the high schools of Johnson City, Tenn.

### ARMY LIBRARIES

The War Department announced on March 22 that when the national emergency was proclaimed the Army had one hundred and forty-seven permanent libraries. Now it has almost six hundred, containing about two million books on a wide variety of subjects. The new libraries have been combined with the service clubs that have been constructed since the war began, although there are libraries in the old posts and service clubs as well as smaller libraries in hospitals, in company day rooms, outpost stations, antiaircraft batteries and on board transports, and library service is being provided even in combat zones.

The librarians report that new fiction and textbooks on mathematics and radio head the list of "best readers." Camp preferences naturally differ; the Sixth Corps Area (Illinois, Michigan and Wisconsin) likes western novels and Shakespeare's plays. Books on the war are not popular, although at Fort Ord, Calif., Mr. Churchill's "Blood, Sweat and Tears" and "Berlin Diary" are much read.

The primary purpose of camp libraries is to provide recreational reading of fiction; however, there is a growing demand for subject books, histories and biographies. The announcement states that the average soldier in the United States Army is more highly educated than in any other army. Many of the five hundred and sixty-nine thousand volumes in army libraries when the emergency was proclaimed, which were worn out or obsolete, have been discarded and replaced by new books.

### BUNDLES FOR BRITAIN

Physicians, hospitals and manufacturers contributed the nearly five thousand used and new surgical instruments and apparatus which were recently shipped to England for distribution to hospitals, Bundles for Britain, Inc., 475 Fifth Avenue, New York, announced on February 24. Equipment which was not in good condition for immediate use when received was reconditioned at the warehouse in New York or by dealers or manufacturers before being packed. The largest single lot in this shipment comprised five hundred and sixty operating instruments for general and special surgical operations and more than six hundred dental instruments; also more than a million tablets of various medicaments. The shipment for insurance purposes was valued at \$10,000 and was made through the American Red Cross.

### DRIED BLOOD PLASMA

The Surgeon General of the Army has submitted for publication the following circular letter:

CIRCULAR LETTER NO. 28 (SUPPLY NO. 12)

- 1. Dried blood plasma is being added to the medical department supply catalogue as standard item 16089 serum, normal human plasma, dried. This dried blood plasma is processed by certain selected manufacturers from blood donated to the American Red Cross. Sources of supply are such that, pending further instructions, this item will be furnished to the following installations only:
  - (a) All task, base and overseas forces.
  - (b) U. S. Army transports.
- 2. This item will not be furnished stations within the continental limits of the United States.
- 3. Liquid plasma centers now in the process of establishment will furnish liquid human plasma for stations within the continental United States. When this liquid plasma is generally available, policies concerning its distribution will be issued from this office by circular letter.

By order of the Surgeon General:

JOHN A. ROGERS, Colonel, Medical Corps, Executive Officer.

### STATE HOSPITAL OFFICER

The Medical Division of the Office of Civilian Defense has recommended the appointment of a state hospital officer as an official of Emergency Medical Service, particularly in the first, second, third, fourth, eighth and ninth defense regions. The principal function of the hospital officer will be to plan for emergency base hospitals for receiving civilian casualties and other hospital evacuees. His duties will be:

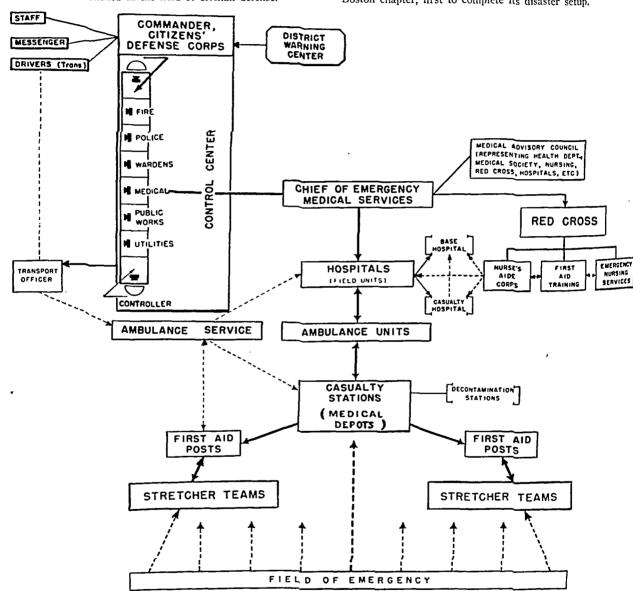
- 1. To survey the hospitals throughout the state (excluding those in the exposed cities) to determine how many beds can be put into immediate use in emergency with existing kitchen, laundry, sanitation and other engineering facilities. (a) by clearing patients to their homes, (b) by restricting admissions, (c) by use of rooms not normally used for patients, (d) by rehousing medical and nursing staff and other hospital personnel outside the hospital, (c) by use of neighboring buildings (schools, hotels) for patients (or staff), (f) by extra bed accommodation in temporary structures erected on available grounds adjacent to the hospital.
- 2. To assist in designating for each casualty hospital or group of hospitals in each exposed city (a) the line of evacution to the base, (b) the transport arrangements, (c) the emergency base hospitals provisionally allotted to each casualty unit.
- 3. To keep constantly informed of the bed state of every hospital in his area by weekly returns.
- 4. To advise the Office of Civilian Defense, through the regional medical officer, on the need for providing additional accommodations, e. g. by temporary construction or by converting convalescent homes, hotels, school dormitories or other structures into hospitals.
- 5. To report to the regional medical officer of the Office of Civilian Defense any exceptional conditions requiring action (e. g. beyond state boundaries or required by the needs of the military situation) and to forward to him copies of a monthly summary report on the state's emergency hospital program. When a hospital outside a state boundary is readily accessible for the reception of casualties from an exposed city, this fact should also be noted.
- 6. To maintain constant touch with the other service departments of the state defense council (e. g. evacuation),
- 7. To supervise the distribution of medical and hospital supplies under the direction of the state civilian defense property officer and report any threatened deficiency to the regional medical officer.
- 8. To supervise staff arrangements for emergency base hospitals and for reception areas.
- 9. To control movements of medical and nursing staff as well as of casualties in any situation affecting emergency base hospitals.

### ORGANIZATION OF EMERGENCY MEDICAL SERVICES IN CIVILIAN DEFENSE

Here is the latest design that has been drawn to indicate the organization of medical services for civilian defense. The head of the service is the chief of Emergency Medical Services, who receives his notification directly from the medical representative in the control center. The chief is aided by a medical advisory council, and the Red Cross in time of emergency operates under the chief of Emergency Medical Services as far as concerns the medical aspects of its work and in direct contact with the medical services established in the field of civilian defense.

### RED CROSS DISASTER RELIEF SQUADRONS

Red Cross chapters throughout the United States are organizing disaster relief squadrons, using either privately owned equipment or newly designed mobile units for immediate service in event of a bombing or disaster of any kind. Each squadron is to be equipped with sixteen station wagons, tents, trailers, cots, stretchers and first aid and emergency equipment. New mobile canteens, approved by the WPB, will be available within six weeks. The squadrons are patterned after those of the Boston chapter, first to complete its disaster setup.



Organization of local Emergency Medical Services: solid line, line of authority; broken line, line of service.

# LECTURES ON WAR EMERGENCIES

The Passaic County (N. J.) Medical Society opened a special course on war emergencies of lectures for physicians and dentists, February 6, with a lecture on "Plan of Emergency Medical Service; Fractures and Traction Splint." The entire group comprised the following topics:

Shock and Hemorrhage, February 13. Treatment of Burns, February 20. Blast Lung; Blast Injuries; Methods of Resuscitation, February 27. War Gases; Germ Warfare, March 6.

The lectures were given at each of the six hospitals in Paterson and Passaic: Paterson General, St. Joseph's and Nathan and Miriam Barnert hospitals, Paterson, and Passaic General, St. Mary's and Beth Israel hospitals in Passaic. The lecturers were chosen from the hospital staffs.

### SAFETY MEASURES AT WAYNE UNIVERSITY

To insure the safety of students and faculty members at Wayne University, Detroit, in an event of a major emergency the Faculty Advisory Committee on War Related Activities has issued a booklet entitled "The Protection of Wayne University Personnel During the War Emergency." Air raid drills are conducted and at various places first aid stations established and stocked with supplies, cots, blankets and stretchers.

# ASSISTANTS TO FLIGHT SURGEONS

A class of enlisted men began a six weeks course of instruction, March 2, at a school of aviation medicine to quality as flight surgeons' assistants.

# ORGANIZATION SECTION

### MEDICAL LEGISLATION

# STATE MEDICAL LEGISLATION New Jersey

Bills Introduced .- S. 217 proposes to require every physician, within one week after making a diagnosis of cancer or other malignant tumor under his care, to report the facts to the state department of health. A similar report must be made by the pathologist in any laboratory to which has been submitted a tissue specimen which after examination discloses the existence of these conditions. A similar report must be made by the person in charge of any hospital, clinic, dispensary, nursing home or other similar public or private institution of every case of cancer, malignant tumor or malignant disease of the blood, and lymphatic systems in a patient receiving care or hospitalization at the institution. A. 238, to supplement the medical practice act, proposes to require every person licensed to practice medicine and surgery, or any branch thereof, to register annually with the secretary of the licensing board on or before July 1 and at that time to pay a registration fee of \$3.

### New York

Bills Introduced .- S. 1729 proposes to enact a separate chiropractic practice act and to create an independent board of chiropractic examiners to examine and license applicants for licenses to practice chiropractic. The bill proposes to define chiropractic as "the science of locating and the removing of nerve interference in the human body, where such interference is the result of or caused by misalignment or subluxations of the vertebral column. It excludes operative surgery, the reduction of fractures, the prescription or use of drugs or medicine, and the practice of obstetrics." A. 2093, to amend the provisions of the law relating to physiotherapy, proposes to define physiotherapy as "the use of actinotherapy, hydrotherapy, mechanotherapy, thermotherapy, and electrotherapy, exclusive of the x-ray, including necessary examinations to determine existing conditions that could be treated thereunder." Under the present law the definition of physiotherapy is as just stated, excluding the language in italics.

# MEDICAL ECONOMIC ABSTRACTS

# COLORADO MEDICAL SERVICE READY

The trustees of the Colorado Medical Service, Inc., through its chairman, Dr. J. W. Amesse, announces in the Denver Medical Bulletin for February that the organization of the service has been completed and that it will begin operation in the near future. The preliminary work has been greatly assisted by the Colorado Hospital Association. Nearly three hundred members in the state and county societies of Denver have expressed, over their signatures, a desire to see the medical service plan put into execution. The approval of more than 50 per cent of the active membership indicates that the society as a whole wishes to cooperate in a thorough trial of the plan.

### MEDICAL PRACTICE IN CHIL-DREN'S BUREAU

The extent to which the Children's Bureau, operating under the Social Security Act in the administration of the State Matching Funds section, is concerned in the practice of medicine is strikingly evident in the budget for the fiscal year ending June 30, 1942. The total budget covers the following items:

### Purpose of Proposed Expenditures

	Amount *
Total budgeted	\$10,921,602,21
For professional personnel	8,336,041.32
system employees)	1,028,253.10
For postgraduate education	384,117.52
For hospital care	319,496.66 853,693.61

^{*} Annual budgets and supplemental budgets approved up to Sept. 3, 1941; fifty-one states (the term "state" includes Alaska, Hawaii, District of Columbia and Puerto Rico).

The importance of the medical element in the work of the bureau becomes evident when these items are further broken down. The expenditures for medical personnel, which amount to \$2,027,041.32, are divided into \$1,396,312.02 for full time and \$619,355.89 for part time physicians. A total of \$639,062.28 is assigned to dental personnel, of which \$466,566 goes to full time and \$172,496.28 to part time dentists.

The largest single item in the budget, \$5,214,716.86, is expended for the employment of nurses. Other items with the amounts appropriated are:

For nutrition personnel	\$249,663.50
For health education personnel	160,434.66
For social work personnel	44,852.00
Postgraduate education	384,117.52

# MEDICAL SERVICE ASSOCIATION IN PENNSYLVANIA

The annual report of the Medical Service Association of Pennsylvania covering fifteen months of operation appears in the Pennsylvania Medical Journal (45:433 [Feb.] 1942). This shows assets and liabilities at \$35,700.78 and a balance on hand of \$7,067.45. Subscribers had increased from 972 on Dec. 31, 1940 to 7,163 one year later. A year ago there were only five small groups and today there are twenty-three groups, some of which are of considerable size.

"This rate of growth is not only healthy," says the report, "but one which may prove to be most advantageous to the association. If the rate were much slower, the volume would be so small that a disproportionate share of income would have to be devoted to the costs of administration. On the other hand, when an organization is traveling uncharted seas as the Medical Service Association is, speed—while it might accomplish certain purposes—certainly increases the possibilities of disaster."

While no attempt has been made to enroll participating physicians except in localities in which there are subscribers, the number of participating physicians has increased through the year from 171 to 226. Physicians have received payments for 466 claims totaling \$13,925. For twelve months out of fifteen a unit value of \$2 has been maintained. A large number of tonsillectomies last summer made it necessary to reduce the unit to \$0.80 for June and \$1 for July and August. A debit balance of \$5,242 is carried on the books of the association in favor of the physicians to whom this reduced value of the unit was paid with the expectation that, as the plan grows, it may be possible to make full payment on these accounts. The percentage of the total income applied to administrative costs has fallen quite rapidly, and in the fifth quarter during which the plan was in operation it amounted to 22.8 per cent of the income.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVI-TIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### CALIFORNIA

Government Finances Research.-Grants totaling nearly two million dollars have been allocated to the University of California, Berkeley, by the United States government for research to further the war effort. All the work is to be of a confidential nature.

Graduates After Accelerated Courses Eligible for Licensure.-The secretary of the board of medical examiners reports that the attorney general of California has advised him that he may accept for licensure applicants who have graduated from an accelerated medical course. The attorney general pointed out that the medical practice act requires that an applicant must have attended four resident courses of instruction, each consisting of not less than thirty-two weeks with a total of four thousand hours of instruction, but such courses need not be pursued continuously or consecutively. The regulation of the time, if any, elapsing between resident courses of instruction, the attorney general said, is a matter to be handled by each approved school.

Annual Heart Meeting .- The California Heart Association will hold its annual meeting at the Hotel Del Monte, May 3. Dr. Wallace M. Yater, professor of medicine, Georgetown University School of Medicine, Washington, D. C., will be the guest speaker. Other speakers will include:

e the guest speaker. Other speakers will include:

Drs. James H. Thompson, Francis L. Chamberlain and William J. Kerr,
San Francisco, Auricular Flutter in Childhood.

Dr. Lewis T. Bullock, Los Angeles, The Importance of Age in the
Relative Frequency of Various Congenital Cardiac Lesions.

Dr. Morris H. Nathanson, Los Angeles, Observations on the Rhythmic
Property of the Human Heart.

Dr. Arthur Selzer, San Francisco, Study of the Circulation in Acute
Myocardial Infarction.

Dr. Walter Beckh, San Francisco, A Revaluation of the Serologic
Status in Syphilitic Heart Disease.

A number of papers are devoted to electrocardiographic studies. Dr. John Martin Askey, Los Angeles, will present a report on "Carotid Sinus Sensitivity Accidents."

### DELAWARE

Dr. Speer Returns as Secretary to State Society .- Dr. William H. Speer, Wilmington, has again been appointed secretary of the Medical Society of Delaware to fill the vacancy that occurred when Dr. Charles Leith Munson went into army service. Dr. Speer previously served as secretary from 1934 to 1937.

### DISTRICT OF COLUMBIA

Director of Venereal Disease Unit. - Dr. William E. Graham, formerly with the U. S. Public Health Service, has been appointed director of the division of venereal diseases of the District health department, effective February 5. He graduated at Rush Medical College, University of Chicago, Chicago, in 1932.

Physician Arrested on Narcotic Charge.—Dr. Laurence M. Hynson, Washington, and Mrs. Janie Mae Jacobs were arrested, January 10, and accused of violations of the Harrison Narcotic Act, according to the Washington Star. The physical processing for more than 2000 Narcotic Act, according to the washington Star. The physician was accused of writing prescriptions for more than 9,000 grains of narcotics in a year for persons not under his direct professional care. The woman was named as a "contact" who procured "patients." The physician, up to March 9, was still in jail because he was unable to produce the \$2,500 bail, it was said.

Prizes for Research .- The Medical Society of the District of Columbia has announced the winners in its first contest to promote postgraduate medical research, newspapers reported on promote postgraduate medical research, newspapers reported on March 26. First prize went to Dr. Roy G. Klepser, assistant resident in surgery at Gallinger Municipal Hospital, for his work on "Problems in the Local Use of Sulfonamides." Second work on Problems in the Local Ose of Sundamides. Second prize to Dr. Ben D. Chinn, medical officer at St. Elizabeths Hospital, for his paper on "Influence of the Bacterial Flora on the Cultivation of Endameba Histolytica." Dr. Irving B. Brick won third prize for his work on "Influenzal Meningitis: Evaluation of Treatment and the Use of Sulfadiazine.

Work for Women. - A meeting was held at the Hotel Mayflower in Washington, March 20-21, under the auspices of the Institute for Women's Professional Relations to discuss opportunities in a wartime world for girls who have enjoyed training in specific types of work, according to the New York Times. Among the speakers were Dr. Warren F. Draper, assistant surgeon general, U. S. Public Health Service; Dr. Sara M. Jordan, Boston, chairman of the Women's Committee on Defense Assignment and Procurement of the American Medical Association, and Helen S. Mitchell, Ph.D., chief nutritionist, Office of Defense Health and Welfare Service.

### **GEORGIA**

Memorial to Physicians.—Crystal chandeliers have been presented to the Fulton County Medical Society as memorials to the late Dr. Edward C. Davis and the late Dr. Stewart R. Roberts. The one in memory of Dr. Davis came from one of the old homes of Philadelphia. The chandelier in memory of Dr. Roberts is a ten light fixture of Waterford crystal made in 1775. It was formerly the property of Duke De Abernon, removed from Esher Palace, Esher Surrey, England. Friends and colleagues of both physicians donated the memorials. Dr. Davis was president of the county medical society in 1928 and Dr. Roberts in 1915. The Fulton County Medical Society has a committee on memorials which as time goes on is to decide on suitable memorials to honor its members.

University News .- The University of Georgia School of Medicine, Augusta, has received a grant of \$4,350 for continuation of researches in the venereal diseases under the direction of Dr. Robert B. Greenblatt, professor and head of the department of experimental medicine. Another grant of \$2,000 was received for continuation of the work in nutrition by Dr. Virgil P. W. Sydenstricker, professor of medicine, and his staff. Recent lecturers at the school of medicine include Drs. James Dellinger Barney, Boston, on "A Consideration of Some of the Problems of Renal Stones" and Leopold Clarence Cohn. Baltimore, "Carcinoma of the Female Breast." The former Wilhenford Hospital for Women and Children at the university has been converted into a tuberculosis hospital and was occupied on February 1. Its capacity is sixty beds. Dr. Lucius N. Dodd, professor of tuberculosis, is in charge. Robert H. Shuler, Ph.D., formerly of the University of Chicago, has been appointed assistant professor of physiology at the school of medicine, Augusta.

ILLINOIS

Increase in Diphtheria.-The state department of health has announced a 10 per cent increase in diphtheria over last year and asks the cooperation of local health officers to augment their local programs of control. Up to April 1, 302 cases had been reported in Illinois this year.

Conference on Delinquency Prevention .-- Governor Green has called a three day conference on delinquency prevention at the LaSalle Hotel, Chicago, April 20-22. The theme of the conference will be "Onward with Youth to Good Citizential" and the conference will be "Onward with Youth to Good Citizential". ship" and will be participated in by youth leaders from Illinois and surrounding states.

Survey to Determine Hospital Facilities .- A survey of all hospital facilities in Illinois was started on March 26 to determine the number of hospitals, bed capacities, and possibilities for expansion and to list additional buildings which may be used for temporary hospitals, newspapers announce. The work is under the direction of Dr. Herbert L. Petitt, Morrison. emergency service medical coordinator for the Illinois Council of Defense.

Welfare Group Reorganized .- The Illinois Conference on Social Welfare recently adopted a new constitution and changed its name to the Illinois Welfare Association. As a part of its reorganization, the association has appointed Mr. Bernard A. Roloff, Chicago, executive secretary. Mr. Roloff for two years had been serving as director of public information of the Illinois Children's Home and Aid Society. The new offices of the association are at 225½ South Fourth Street. Springfield.

Chicago The Hedblom Lecture.-Dr. Stuart W. Harrington, Rochester, Minn., professor of surgery, University of Minnesotte Graduate School, Minneapolis, will give the fifth annual Helborn Memorial Lecture at the University of Illinois Collect of Medicine, April 29, on "Diagnosis and Surgical Treatment of Intrathoracic Tumors." The fecture is sponsored by lota chapter of Phi Beta Pi Fraternity.

Public Meeting on Cancer.—The Northwest and Irving Park branches of the Chicago Medical Society sponsored a Park branches of the Chicago Medical Society sponsored a public meeting on March 20 for the consideration of cancer. Dr. David E. W. Wenstrand, Milwaukee, medical director, Northwestern Mutual Life Insurance Company, discussed "The Prevalence of Cancer" and Dr. Arthur C. Christie, professor of clinical radiology, Georgetown University School of Medicine, Washington, D. C., "What Is Being Done to Control Cancer." Dr. Benjamin H. Orndoff, clinical professor of radiology, Loyola University School of Medicine, discussed the papers.

Competition for the Capps Prize. - The Institute of Medicine of Chicago announces that competition is now open for its annual Joseph A. Capps Prize for medical research for "the most meritorious investigation in medicine or in the spe-cialties of medicine." The investigation may also be in the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition is open to graduates of approved Chicago medical schools who completed their internship or one year in laboratory work in 1940 or thereafter. Manuscripts must be submitted to the secretary of the Institute of Medicine of Chicago, 86 East Randolph Street, not later than Dec. 31, 1942.

### INDIANA

New Head of Dermatology Department.-Dr. Frank M. Gastineau, Indianapolis, has been appointed head of the department of dermatology and syphilology at the Indiana University School of Medicine, Indianapolis, succeeding Dr. Paul Cregor, who retired. Dr. Gastineau was born in Indianapolis and graduated at the medical school in 1918.

Changes in Health Personnel.-Dr. Richard P. Good has been appointed a member of the Kokomo city board of health.

—Dr. Palmer O. Eicher, Decatur, has been named health officer of Adams County.

—Dr. Carl B. McCord, Veedersburg, is the new health officer in Fountain County. -- Dr. Charles F. Abell, Marion, has been named city health officer.ham E. Jenkinson, Mount Vernon, has been appointed in charge of the Posey County health unit, and Dr. William Robert Tipton, Greencastle, in charge of the unit in Putnam County.

Dr. Harley F. Flannigan, Lagrange, has been appointed health commissioner for Lagrange County.

### KANSAS

Dr. Porter Resigns as Secretary of State Society.—Dr. John M. Porter, Concordia, who was called to active duty in the U. S. Navy on March 6, has resigned as secretary of the Kansas Medical Society. He was elected to the office in May 1939. Dr. Porter was commissioned lieutenant commended in the mander in the navy.

Society News.-A joint meeting of the Kansas Obstetrical and Gynecological Society was addressed in Dodge City, March 20. by Dr. William F. Mengert, Iowa City, on "Consideration 20, by Dr. William F. Mengert, Iowa City, on "Consideration of Dystocia and of Practical Methods of Estimating Pelvic of Dystocia and of Practical Methods of Estimating Pelvic Capacity."—The Ford County Medical Society and the Kansas Obstetrical and Gynecological Society was addressed in Dodge City, March 20, by Dr. William F. Mengert, Iowa City, on "A Consideration of Dystocia and of Practical Methods of Estimating Pelvis Capacity."—The Wyandotte County Medical Society was addressed, March 3, by Drs. John A. Billingsley on "Aniseikonia" and Harold V. Holter, "Uses and Abuses of Ovarian Hormones." Both are from Kansas City.

### MARYLAND

Graduate Week in Medical History.-The Institute of drautate Week in Medicine, Johns Hopkins University School of Medicine, Baltimore, will hold its third "graduate week in medical history," April 27-May 2, on the theme "Contributions of Greece and Rome to Medicine." The course will consist of lectures, seminars, demonstrations, exhibits and discussions. Dr. Henry E. Sigerist, William H. Welch professor of the history of medicine, and director of the institute of medicine, will deliver the opening address. Other speakers will be:

Dr. Owsei Temkin, A Hippocratic Surgeon's Practice, April 28, and Anatomical Demonstrations in Antiquity, April 30.

I. E. Diabkin, Ph.D., A Medical Student in Alexandria, April 29.

Dr. Alan F Guttmacher, Soranus Makes a Delivery, May 1.

Henry T. Rowell, Ph.D., Hygiene in Every-Day Roman Life, May 2.

There will be seminars on:

Bibliography of Greek and Roman Medical Literature, Dr. Sigerist, April 27.

April 27.
The Cult of Asclepius, April 28, and Greek and Latin in Medical Terminology, May 1, Dr. Ludwig Edelstein.
Drug Lore and Drug Trade in Greece and Rome, April 30, G. Raynor Thompson, Ph D.

There will also be exhibits on Medicine in Greece and Rome, Greco-Roman Medical Literature, New Literature on Medical History, Publications of the Institute of the History of Medi-cine and Permanent Museum of the Institute of the History of Medicine.

#### MASSACHUSETTS

Course in Industrial Hygiene.—Harvard University School of Public Health, Boston, will conduct a course in industrial hygiene, April 27-August 1. The course is open to physicians and engineers who desire training in this field and covers, among other subjects, sanitary parasitology, ecology, industrial ventilation and air conditioning.

Fifteen Years of Cancer Control.—Since a cancer control program was inaugurated fifteen years ago by the commonwealth of Massachusetts, about 14,000 patients with cancer have attended the cancer clinics. A recent report shows that 40 per cent of the patients are still alive. At the end of ten years, 47 per cent of the patients with cancer of the skin were alive, 23.3 per cent with cancer of the mouth, 21.6 per cent with cancer of the uterus and 15.6 per cent with cancer of the breast. The report states that, as ten years after clinic admission the "dying off curve" for clinic patients is almost identical with that of the Massachusetts population, most of these cases may be considered to be cured. In 1940 physicians referred 80.8 per cent of the patients to the crinics as compared with the 20.1 per cent who were referred in the first year of the program. Between 1927 and 1935 there were 421 physicians who used the tumor diagnostic service; in 1940 there were 798. In the same period the number of specimens increased from 2,813 to 3,907. The report also comments on the remarkable change in attitude of the public toward education in the could done of the program is used difficult to obtain tion; in the early days of the program it was difficult to obtain an audience when cancer was under discussion. Today, members of the cooperative cancer control committees number over ten thousand and have little difficulty in arranging for cancer meetings.

In discussing education of the public in the program, the report stated that the delay between the time of the first recognized symptoms of the disease and the time the patient presents himself to a physician is one measure of judging the effectiveness of a program. In the early years of the program the delay averaged 6.5 months. Between 1936 and 1939 it was 5.3 months and in 1940 was 4.6 months. A similar estimate of the effectiveness of education is the percentage of patients with cancer who go to their physicians within the first month of recognized symptoms. In 1940, 21 per cent of the clinic cancer patients went to their physician within the first month of their symptoms as compared with 15 per cent in the early

years of the program.

During the period of the cancer program the actual number of deaths has increased annually by about 2 per cent; the clinic attendance of cancer patients has increased annually about 11 per cent, the number of specimens sent to the diagnostic laboratories about 4.5 per cent, and the admissions to general hospitals about 5 per cent. In 1932, 31.1 per cent of the fatal cases had never been treated in a cancer hospital; in 1940 this figure was 15.8 per cent, indicating that hospitalization for cancer is increasing far more rapidly than the cases of the disease. The report states that the attendance of new cancer patients at the state aided clinics has increased five times as fast as the deaths; only about 8 per cent of the cancer population are seen in the clinics. The other 92 per cent make use of other facilities for diagnosis,

### MINNESOTA

Pioneer Veterinarian Retires. - Charles E. Cotton, D.V.M., state pioneer of the bovine tuberculosis campaign, has retired after twenty-two years as executive officer and secretary of the Minnesota State Livestock Sanitary Board. The first tuberculin testing of cattle in Minnesota in 1894 is attrib-uted to Dr. Cotton. Through his efforts and those of the Minneapolis Board of Trade, the legislature was induced to pass a law permitting cities to regulate the production and distribution of milk within their limits. In 1903 when the state livestock sanitary board was established, Dr. Cotton was named a member and in 1918 was chosen head of the board.

Course for Physicians on Kenny Method. - The first Course for Physicians on Kenny Metnod.—Inc first continuation course for physicians dealing especially with the Kenny technic for infantile paralysis was completed at the University of Minnesota Center for Continuation Study on April 2. Physicians taking the course included Earl C. Elkins, Rochester; William J. Gardiner, Toronto, Canada; Hyman M. Ginsburg, Fresno, Calif; Frances A. Hellebrandt, Madison, Wis.; Frank H. Krusen, Rochester; William H. Northway, San Francisco; Malvin J. Nydahl, Minneapolis; Arthur L. Watkins, Boston, and Bertha W. Weinmann, Chicago. The course occupied a week and included studies of the pathology and general care of infantile paralysis as well as special demonstrations in the Kenny method.

### NEW JERSEY

State Medical Meeting in Atlantic City.-The one hundred and seventy-sixth annual convention of the Medical Society of New Jersey will be held at Haddon Hall, Atlantic City, April 21-23, under the presidency of Dr. Thomas K. Lewis, Camden. The speakers will include:

Dr. John S. Lockwood, Philadelphia, Chemotherapy Under War Time

Dr. John S. Lockwood, Philadelphia, Chemotherapy Under War Time Conditions,
Dr. Ralph C. Williams, U. S. Public Health Service, Washington,
D. C., Public Health in Time of War.
Dr. Joseph A. Bell, passed assistant surgeon, U. S. Public Health Service, Washington, D. C., Epidemiology in War Time.
Dr. Frederick R. Hook, captain, M. C., U. S. Navy, Bethesda, Md.,
Chemotherapy in War Time Surgery.
Dr. George M. Dorrance, Philadelphia, Plastic Surgery in War Time.
Dr. Frank C. Yeomans, New York, Stricture of the Rectum.
Drs. Bernard A. Hirschfield, Trenton, and Anthony S. Tornay and Joseph C. Yaskin, Philadelphia, Spontaneous Subarachnoid Hemorrhage.
Dr. Meredith F. Campbell, New York, Abdominal Symptoms of Urologic Origin in Children.
One Inneheon session will be addressed by Dr. Thaddeus I.

One luncheon session will be addressed by Dr. Thaddeus L. Montgomery, Philadelphia, on "Management of the Infertile Pregnant Patient." One panel discussion on acute conditions Pregnant Patient." One panel discussion on acute conditions of the abdomen in infancy will be presented by Drs. Edward J. Donovan, New York, Edward W. Sprague, Newark, and Irvin E. Deibert, Camden. The program also includes a series of scientific motion pictures. The fifteenth session of the woman's auxiliary to the state medical society will be held April 21-23.

### NEW YORK

State Medical Meeting in New York.—The Medical Society of the State of New York will hold its annual meeting at the Waldorf-Astoria, New York, April 27-30, under the presidency of Dr. Samuel J. Kopetzky, New York. Included appropriate property will be considered with the contractions. among the speakers will be:

Dr. William P. Wherry, Omaha, Relations of Faulty Dentition to Deafness.

Major General James C. Magce, Washington, D. C., Transition of Civilian Doctors to Medical Officers of the Army.

Col. Leonard G. Rowntree, Washington, Lessons Learned from Physical Experimentary of Paristrans

Examinations of Registrants.

Dr. George Bachr, Washington, The Physician's Role in the Civilian Defense Program. Dr. Henry G. Barbour, New Haven, Conn., Movements of Body Water

Dr. Henry C. Barboth, New Haven, Comm. Movements of Body Water in Relation to Anesthesia.

Dr. Martin S. Kleckner, Allentown, Pa., Significance and Interpretation of the Diarrheas Encountered in Proctologic Practice.

Dr. Jacob Arnold Bargen, Rochester, Minn., Chemotherapy in the Digestive System.

Dr. Louis Schwartz, Behesda, Md., Protective Methods for the Pre-

Dr. Louis Serwartz, Bethesua, and, Tolerke Remains to the vention of Industrial Dermatoses.

Dr. Sumner L. S. Koch, Chicago, Tendon and Nerve Injuries.

Dr. Norman F. Miller, Ann Arbor, Surgery of the Ovary.

Dr. Virgil G. Casten, Boston, Common Motor Anomalies and Their

Dr. Virgil G. Casten, Boston, Common Motor Anomalies and Their Treatment. Dr. Walter I. Lillie, Philadelphia, A Treatment for Herpes Zoster

Ophthalmicus.
Dr. Francis L. Lederer, Chicago, Otosurgical Deficiencies.
Dr. Allen F. Voshell, Baltimore, Mechanics of the Knee Joint.
Dr. Philip Levine, Newark, N. J., The Pathogenesis of Erythroblastosis

Fetalis.

Dr. Henry R. O'Brien, Hartford, Conn., Factors in Obstetrical Care: Report of a Rural Study.

Dr. Herrman L. Blumgart, Boston, Management of Cardiac Patients Who Require Surgery.

Dr. Howard F. Root, Boston, Medical Aspects of Diabetic Surgery.

Dr. James C. McClelland, Toronto, Canada, Relationship of Tuberculosis to Trauma.

Dr. Walter B. Mount, Montclair, N. J., Alexander Anderson, M.D., 1775-1870, The First Wood Engraver in America.

Drs. Roy B. Henline, New York, and William P. Yunck Jr., Jersey City, N. J., Scrotal Infections: Their Relationship to Trauma and Compensation.

Compensation. Drs. Louis M. Orr and Palmer R. Kundert, Orlando, Fla., Late Results Following Transurethral Prostatic Resection.
 Dr. Charles B. Huggins, Chicago, Endocrine Relationships of Prostatic

Cancer. Dr. William G. Leaman Jr., Philadelphia, Physical Therapy in Heart

Disease. n de Rezende, Rio de Janeiro, Experiments with "Glue in Repair of Nerve Injury: Description of Technic and Dr. Wilson de Suture" in F

liss Elizabeth Kenny, formerly of Australia and recently of Minne-apolis, The Technic of the Kenny Treatment of Acute Poliomyelitis.

The program will be divided into general sessions, sectional neetings and symposiums, including one on diseases of the chest, in which Dr. Edgar Mayer, assistant professor of clinical medicine, Cornell University Medical College, will deliver the fourth A. Walter Suiter Lecture on "Advances in Tuberculosis of Importance to the General Practitioner."

### New York City

Personal. - Dr. Julius Hass, who formerly occupied the chair in orthopedic surgery at the University of Vienna, has been appointed attending orthopedic surgeon, in charge of the Orthopedic Service, at Montesiore Hospital.

Meeting on Anesthesia.—The regular session of the American Society of Anesthetists, Inc., was held at the Squibb Auditorium, April 9. The speakers included Dr. Henry K. U. Beecher, Boston, on "Possibilities and Limitations of Barbiturates in Anesthesia as Suggested by Experimental Work"; Dr. Frederick M. Allen, "Refrigeration Anesthesia for Limb Operation"; Dr. Samuel A. Thompson, "Asphyxial Resuscitation: The Phenomenon and Its Mechanism," and Dr. George L. Birnbaum, "Comparison of Methods of Resuscitation."

Interest in Healthmobile. - The Brooklyn Tuberculosis and Health Association reports that in the first forty-seven days that the healthmobile was open to the public 37,788 persons, chiefly adults, viewed the fifty-one dioramas, an average of 804 daily. During the eleven days it was shown in the Brooklyn Navy Yard 10,563 civilian employees and enlisted men viewed the exhibit. It is planned to show the healthmobile as a part of the scientific exhibit at the annual meeting of the National Tuberculosis Association in Philadelphia May 4-9.

Report of Museum of Health .- Plans are under consideration to establish the American Museum of Health in a wing of the American Museum of Natural History, New York, according to a report of the museum's activities of the past year. More than three hundred thousand people have seen the museum's exhibits since the close of the fair in 1940. Through its exhibit loan program, museum materials were displayed by fourteen organizations in twelve cities in the past year. The report also announces the forthcoming publication of the first report on the Visitor Reaction Study conducted by the museum and the U. S. Public Health Service, under a grant of the Carnegie Corporation, New York, entitled "What the Public Knows About Health" comprising a compilation of the results of the health knowledge tests given at the New York World's Fair and the San Francisco Golden Gate Exposition. Recently elected members of the board of directors include John A. Marcuse, Basil O'Connor, New York, and Edwin A. Salmon. Mr. O'Connor was elected treasurer of the museum. Plans are now going forward to hold a meeting of the American Museum of Health on April 27.

### NORTH CAROLINA

Internships and the Accelerated Program.-In order to cooperate with the accelerated medical school program, the Duke Hospital internships of twelve months in the various services will commence on July 1, 1942, April 1, 1943, Jan. l. 1944, Oct. 1, 1944 and July 1, 1945. This schedule will provide an overlapping in internships for a period of three months, during which the preceding group will be senior interns.

Applications should be sent to the superintendent six months before these dates.

### PENNSYLVANIA

Meeting of Ophthalmologists.—A joint meeting of the Wilkes-Barre, Southern Anthracite and Reading Eye, Ear, Nose and Throat societies will be held at the Schuylkill Country Club near Pottsville, April 29, with a view to forming the Eastern Pennsylvania Association of Eye, Ear, Nose and Throat societies. The following scientific program has been arranged:

Dr. Benjamin F. Souders, Reading, Ocular Absorption of Certain

Sultonamides.
Dr. Thomas R. Gagion, Pittston, Ocular Signs of Myasthenia Gravit and the Prostigmine Test.
Dr. Horace J. Williams, Philadelphia, Ménière's Disease.
Dr. Douglas MacFarlan, Philadelphia, Deafness.
Dr. Algernon B. Reese, New York, Practical Ophthalmological Tieta-neuties

Dr. Lewis T. Buckman, Wilkes-Barre, is temporary chairman of the proposed group and Dr. James E. Landis, Reading. temporary secretary.

Philadelphia De Schweinitz Memorial Library.-Plans are under way to equip a library in the University Hospital in honor of the late Dr. George E. de Schweinitz, professor emerius of or the landous University Hospitals of the landous University Hospitals of the landous University Hospitals of the landous University Hospitals of the landous University Hospitals of the landous University Hospitals of the landous University Hospitals of the landous University Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous Hospitals of the landous H thalmology, University of Pennsylvania School of Medicine-Friends of Dr. de Schweinitz have undertaken to finance the project. Any one wishing to contribute may address Mr. Edmund R. Purves, chairman of the committee, at the Uriversity Hospital.

Dr. Ruth Weaver Succeeds Dr. Martha Tracy .- Dr. Ruth Hartley Weaver, registrar of vital statistics of Philadelmun riarruey weaver, registrar of vital statistics of Finaderphia, has been appointed assistant director of health to succeed
the late Dr. Martha Tracy. Dr. Weaver graduated at
Woman's Medical College of Pennsylvania in 1917 and was
an instructor in surgery there from 1919 to 1925. She has
served as epidemiologist of the city department of health and is at present assistant professor of epidemiology and vital statistics, Temple University School of Medicine.

### RHODE ISLAND

Health Institute.-The twelfth New England Health Institute will be held at the Biltmore Hotel, Providence, April 21-23. Dr. Thomas Parran, Washington, D. C., surgeon general, U. S. Public Health Service, will give the principal address, and Mark D. Elliot, D.D.S., Boston, will address a luncheon meeting of the Rhode Island Nutrition Association and the Rhode Island Dental Society on "Nutrition and Dental Health."

#### WASHINGTON

Medical Round Table of the Air .- Station KIRO, Seattle, and the King County Medical Society are cooperating in a weekly program entitled "Medical Round Table of the Air." The series opened on April 9 and featured a panel of physicians to discuss medical developments of current interests particularly from the standard of their effects on physical fitness. A question of the week will be chosen from among those received from listeners. The names of the physicians are not mentioned on the broadcast nor in any of the general public releases.

#### PUERTO RICO

Report of School of Tropical Medicine.-A report has been issued concerning the activities of the School of Tropical Medicine, San Juan. Teaching started in the department of public health on Feb. 17, 1941. This department will confine its work to the training personnel for administrative and field duties within the Insular Health Department. A sum of \$65,000 had been apportioned under the National Security Act to maintain an educational program under the direction of this department. The library, which was expanded, was moved into a new building at the close of the calendar year.

Legislative action of May 1, 1940 set aside the University Hospital as a diagnostic and research unit, cooperating with the district hospitals of the Insular Health Department in the study and investigation of tropical diseases. During the year ended June 30, 1941 the hospital admitted 688 patients for medical attention. Forty children were treated in the chil-dren's ward, recently opened through the gift of \$2,000 of the Rotary Club of San Juan. A total of 16,998 outpatients were treated. Of the two hundred and fifteen operations performed, one hundred and one were on charity patients; one hundred and forty-one blood transfusions were given. The report treats the many problems of research carried on in the various departments of the schools, bringing the many activities up to date.

Dr. George W. Bachman, director of the School of Tropical Medicine, recommends that the school be given a permanent operating budget; this lack he says explains why no promotions have been extended to the full time faculty members. The school has grown from an organization which could be supported on a yearly budget of \$30,500 in 1926 to one that now requires an annual maintenance appropriation of \$276,747.

#### GENERAL

Meeting of Psychoanalysis Association.—The meeting of the Association for the Advancement of Psychoanalysis will be held at the Copley-Plaza Hotel, Boston, May 19. The morning session will be devoted to a panel discussion on human destructiveness. The speakers at the afternoon session will include the following New York physicians:

Dr. William V. Silverberg. Psychoanalysis, Religion and World Crisis, Dr. Bernard S. Robbins, Evolution of the Neurotic Present from the Traumatic Past.

Dr. Karen Horney, The Role of Unconscious Arrogance in Neurosis, Dr. Judah Marmor, The Role of Instincts in Human Behavior. Dr. Clara M. Thompson, What Is Penis Envy?

Annals of Surgery to Appear in Spanish. - Beginning with the June issue, Annals of Surgery will henceforth appear also in a Spanish edition. This arrangement was a result of negotiations of the Coordinator on Inter-American Affairs. Mr. Lewis Hanke, director of the Hispanic Foundation, Guillermo Kraft Company, one of the oldest publishing firms in Buenos Aires, will translate the Annals of Surgery each month for South American physicians and surgeons. The editorial board of the journal, of which Dr. Walter E. Lee, Philadelphia, is chairman, will cooperate with Latin American physicians in the new project.

Association for the Study of Neoplastic Diseases. The spring meeting of the American Association for the Study of Neoplastic Diseases will be held in the Bowman Gray School of Medicine, Wake Forest College School of Medical Sciences, Winston-Salem, N. C., April 23-25. The Robert E. Lee Hotel, Winston-Salem, will be the headquarters. The following subjects will be covered: tumors of the soft parts and miscellaneous tumors, intrathoracic tumors, tumors of bone, tumors of the female generative organs, tumors of the breast and tumors of the gastrointestinal tract. The summer meeting of the association will be held at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, June 25-27, with Dr. Grant E. Ward, Baltimore, in charge.

American Federation for Clinical Research.-The first annual meeting of the American Federation for Clinical Research will be held at the Center for Continuation Study, University of Minnesota, Minneapolis, April 20-21. Among the speakers will be:

Drs. Henry N. Harkins and Conrad R. Lam, Detroit, Quantitative Studies on Plasma Therapy in Severe Burns.
Dr. Edward C. Reifenstein Jr., Syracuse, N. Y., The Effect of Gonadal Hormones on Senile Osteoporosis.
Drs. Carl G. Morlock and Byron E. Hall, Rochester, Minn., The Association of Hepatic Cirrhosis, Thrombocytopenia and Hemorlands Transaction.

Association of Hepatic Cirrhosis, Infomocytopenia and Itemorrhagic Tendency.

Dr. John A. Anderson, Minneapolis, The Antagonism of Adrenal Cortical Extract to Pitressin in Human Diabetes Insipidus.

Dr. Ivving Greenfield, Brooklyn, Thrombosis of the Abdominal Aorta.

Drs. Fuller Albright, Patricia H. Smith and Russell Fraser, Boston, Short Stature Associated with Congenital Hypoplasia of the Ovaries.

Dr. Nahum J. Winer, New York, Renal Function in Diabetes Insipidus.

Dr. Willis E. Brown and Violet M. Wilder, Ph.D., Omaha, Response of the Human Uterus to Adrenalin.

Five Day Cure for Gonorrhea.-For the first time, a five day cure for gonorrhea has been perfected and proved in large scale tests, Surg. Gen. Thomas Parran of the U. S. Public Health Service announces. Sulfathiazole is now credited with the cure of at least 80 per cent of all gonorrheal infections. Of the remaining 20 per cent, many may be cured by another course of treatment with the same drug or by other special methods. The surgeon general's announcement coincides with the appearance of an article describing the five day treatment in Venercal Disease Information, published by the service. Entitled "The Management of Gonorrhea in General Practice," the article was prepared by the executive committee of the American Neisserian Medical Society. Originally developed in the venereal disease research laboratory of the public health service, the cure has been confirmed by tests on thousands of patients in medical centers and is being recommended for routine use by the medical profession.

Meeting of Health Officers .- Dr. Carl V. Reynolds, Raleigh, secretary and state health officer of the North Carolina State Board of Health, was elected president of the State, Territorial and Provincial Health Authorities of North America at the recent meeting in Washington, succeeding Dr. Frederick W. Jackson, deputy minister of health, Winnipeg, Man. Other officers are Drs. Gregoire F. Amyot, provincial health officer, Victoria, B. C., vice president, and Albert J. Chesley, Minneapolis, secretary and executive officer, Minnesota Department of Health, who was reelected secretary and treasurer for his eighteenth term. Following a meeting with the U. S. Children's Bureau a new organization was formed composed of state and territorial health officers of the United States and its possessions to act as a clearing house on matters of federal import relating to the various states and territories. The regular association had met earlier with the U. S. Public Health Service to hear, among others, addresses by Dr. Thomas Parran, surgeon general of the service, and Paul V. McNutt, administrator, Federal Security Agency, on "Health Agencies, Their Responsibilities and Their Opportunities During the Present Crisis.

Annual Exhibit of Physician's Art Association .- The fifth annual exhibit of the American Physician's Art Association will be held at Atlantic City, N. J., June 8-12. The gallery will be on the main floor of the auditorium. The secretary of the art association, Dr. Francis H. Redewill, has sent entry blanks to members giving details of the kind of art pieces that will be exhibited and how to send them. Dr. Redewill's address during the annual meeting will be the Hotel Claridge, Atlantic City, where all exhibitors should send their pieces express collect to arrive between June 1 and June 6. Through the courtesy of Mead Johnson & Co., Evansville, Ind., there will be no fees for hanging and no express charges

either way. The type of art to be exhibited includes personal work of the following types of medium: oil portraits, oil still life, landscapes, sculpture, water color, pastels, etchings, photography, wood carving, leather tooling, ceramics and tapestries (needle work). All pieces should be sent preferably by railway express collect, automatically covered with \$50 insurance. The dues of the American Physician's Art Association after March 1, 1942 are \$2. However, those who paid their \$1 dues prior to March 1 will be eligible to exhibit. Mead Johnson & Co. has published a book containing photographs of art work done by six hundred physicians, a copy of which will be mailed gratis to every member of the American Physician's Art Association in a short time. Exhibitors should send now for entry blanks to Dr. Redewill in the Flood Building, San Francisco, one of which should be used for each medium in this in the following the should be used for each medium in which it is desired to exhibit. There is a charge of \$1 for each extra medium. Only two pieces of art are allowed in each type of medium. The prizes offered will include more than fifty trophies, twenty-five medals and six plaques.

### FOREIGN

Soviet Doctors Use American Methods.—Dr. B. A. Petrov, chief surgeon of the Black Sea Fleet of the Soviet Union, in an intercontinental news dispatch from Moscow is reported to have said that the application of American surgical technics by Russian doctors are bringing highly gratifying results. Soviet field surgery, he said, now applies a cast directly on the open wound. The favorable action is rapid, makes for rest of the wound and the fracture, facilitates the removal of the patient, and effects tremendous saving in dressing materials. Dr. Petrov stated that 70 per cent of the wounds in naval battles are wounds of the extremities. He referred particularly to the plaster cast technic developed by Dr. H. Winnett Orr of Lincoln, Neb. Dr. Orr's book "Trueta's Treatment of War Wounds and Fractures" is one of a list that Russian doctors have requested.

Dr. Petrov pointed out that burns of the extremities and of the face and body were more frequent in the navy than in the army and "as a basic means of the treatment of such wounds we have adopted the method of the American physician Batman, which has produced excellent results."

Russian War Relief, Inc., 535 Fifth Avenue, New York City, endeavors to supply Soviet medical authorities with information about the latest American medical advances.

Public Health Under Hitler's Rule .- The following items

have been collected from various sources:

Smallpox has been reported in the Paris area, and the Academy of Medicine has urged the people to have themselves revaccinated, according to Radio Lyons.

The official report of the Budapest health officer states that during January there were 4 cases of typhus in Budapest, according to the *Deutsche Zeitung*, Budapest. The burgomaster of Aalborg insists there are no lice in his community and refuses to take precautions against typhus, declaring that the medical officer's methods of investigations are illegal, according to the Göteborgs Handels-och Sjofartstidning. The meeting of the district medical officers at Copenhagen decided that the need for delousing centers is not pressing, but the Ministry of Health is prepared to act at short notice.

According to the Paris Soir, the comité nationale de l'enfance has submitted a report to the Academy of Medicine of Paris, stating that emaciation and an increase in tuberculosis are prevalent among the population in the occupied zone as a result

of food restrictions.

Twelve persons were seriously "poisoned" by meat in Miskolc, The illness was Augustini. The according to the Deutsche Zeitung, Budapest. The illness traced to sausage sold by a butcher named Augustini. authorities made an investigation to determine whether the meat came from a diseased animal clandestinely slaughtered. The chief physician of the Elisabeth Hospital established that the cause of the illness was "paratyphoid infection." This announcement caused great anxiety in Miskolc, as a number of families had bought meat from this butcher.

The Croat minister of public health, according to the Neues Wiener Tagblatt, in an address at the annual meeting of Croat physicians, pointed out that the Croat state is confronted with an impossible public health situation, as in the whole of Croatia there are only fifteen hundred physicians, less than in the old Croatia before the war of 1914-1918.

All persons of Jewish descent in Bulgaria who belong to the medical, dental and pharmaceutical professions and who no longer can follow their profession in urban areas will, according Fransoccan, now be settled in rural districts, under the law of civilian mobilization, where there is a shortage of doctors and pharmacists.

In an article in the Deutsche Allgemeine Zeitung the death rate among infants is said to be favorable in Germany, although measures must be taken to reach still better figures. A center

Paris had 2,270,253 inhabitants on January 8, according to Havas, as compared with 1,051,506 in 1940 and 2,824,746 in 1936. The total number of people in the department of the Seine is 4,136,614.

The reich youth leader, Axmann, addressed the Hitler youth leaders in Berlin and said, according to DNB, that during 1942 the Hitler youth would pay particular attention to securing candidates for the army medical corps and will increase it efforts in caring for the welfare of the soldiers and for the next of kin of those killed. Axmann is reported to have said that all the Hitler worth leaders for for service were new side. that all the Hitler youth leaders fit for service were now with the forces and the practical work in this organization was now being done by the younger and subordinate elements of the corps. All the other activities of the Hitler youth would be of the kind dictated by the necessities of the war. Axmann stated that service in the East is now the most important task.

# Government Services

### General Dunham to Go to Ecuador

Brigadier General George C. Dunham, Medical Corps, U. S. Army, has been appointed director of a new division of health and sanitation in the Office of Inter-American Affairs. General Dunham will be placed at the head of a mission which is going to Ecuador to undertake malaria control, improvement of sewage disposal and other sanitary measures in cooperation with the Ecuadorean government. According to Science, members of the mission will include Dr. Walter C. Earle of the International Health Division of the Rockefeller Foundation and recently health officer of the Champaign-Urbana (III.) health district. General Dunham was chief of the division of preventive medicine, Office of the Surgeon General, War Department, from 1922 to 1925; director, military sanitation, medical field service school, Carlisle Barracks, Pennsylvania, 1926-1931; technical adviser of public health to the governor general of the Philippine Islands, 1931-1935, and director of laboratories of the Army Medical School since 1936.

### Health of the Army

A new low death rate per thousand strength for the U.S. Army was established in 1940. According to the annual report of the surgeon general, there were 257,136 admissions to sick report from all causes, giving an annual rate per thousand of 763.3, an increase of 44 per cent over that for 1939, which was the lowest on record. Diseases of the respiratory system were responsible for the largest number of admissions. In second place were infectious diseases and conditions of the directive place were infectious diseases and conditions of the digestive There were 267 admissions with one hundred and eight system. deaths due to aircraft accidents in 1940, and thirty-two deaths from accidental drowning. The admission rate for veneral diseases for the whole army was 42.5 per thousand strength. number of days lost from duty due to venereal disease was 456,148. The average number of men absent from duty each day from this cause was 1,246. The average length of treatment in hospitals or quarters for all venereal diseases was thirty-two days. The average was the treatment of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the cause of the caus The average number of days lost per case for syphilidays. The average number of days lost per case for syphili-was twenty-eight, for gonorrhea thirty-five and for other ven-real diseases twenty. Gonorrhea continued to lead the causes of noneffectiveness. During the year, 1.39 per cent of the strength of the army was lost by discharge or retirement for physical disability. Dementia praecox was the leading cause for dis-charge. Manic depressive psychoses also appeared for the first time among the leading causes. Tuberculosis as a leading cause of death reached a new low and is near the bottom of the list. There were 229 deaths attributed to motor vehicle accidents. accidents.

During the fiscal year 1941 the average number of men present daily in the Civilian Conservation Corps was 243,926, a reduction of 22,252 from the preceding year. Of the 337,373 admitted to sick report during the year, 316,758 were for disease and 20,612 for injuries. This was the smallest total for injuries in any one year since the inception of the corps in 1933. There were 521 deaths, of which 248 were attributed to injuries and 273 to disease.

On Jan. 2, 1941 the Office of the Surgeon General, exception of the Army Medical Museum and the Army Medical Library, was moved from War Department Annex Number 1 into a portion of the Social Security Building. During the fiscal year 1941 the average number of men

# Foreign Letters

### LONDON

(From Our Regular Correspondent)

Feb. 28, 1942.

### Health Conditions in Germany

Information as to health conditions in Germany is difficult to obtain. The press is rigidly controlled, and truth is not only suppressed but replaced by any fiction which is thought to be helpful. However, leakage will occur. Few German medical journals come to this country now. but the Times is able to quote from information showing that undernourishment and fatigue are beginning to tell on the population. In a copy of the Münchener medisinische Wochenschrift the date of which is not given, Dr. G. Seiffert sets out to prove that precautions suggested by previous wars kept epidemics under control until the outbreak of the conflict on the eastern front, but his figures suggest the opposite. Cases of diphtheria during the first five weeks of 1931 numbered 25,144; in 1939, 65,144; in 1941, 65,775. For scarlet fever the figures were in 1931, 19,494; in 1940, 56,154; in 1941, 167,428. For dysentery, 1931, 2,596; 1939, 6,135; 1940, 12,705. Similar increases are shown for whooping cough, tuberculosis and food poisoning. The average number of cases of disease given in 1931 is increased threefold in 1939 and sixfold in 1941.

The Deutsche medizinische Il'ochenschrift devotes the major part of two December issues to the effects of prolonged fatigue on health. It states that only relaxation can remove the effects, often far reaching, of sustained fatigue. All attempts to do so by stimulant drugs, such as amphetamine sulfate, have utterly failed. Increasing observations that the use of such drugs has not only produced total collapse but inculcated drug habits is strengthening the resolve of physicians not to use them for combating fatigue.

### Report on the Public Health

The reports on the public health continue good in spite of war conditions. Sir William Jameson, chief medical officer of the Ministry of Health, states that there is no indication of an influenza epidemic, although it is too early to say that we shall completely escape. In the one hundred and twenty-six large cities of England and Wales the deaths recorded from influenza in the week ended January 3 numbered only three, compared with fifty-three last year. The measles epidemic, which raged last year, has almost disappeared. The cases notified during that week numbered 926, compared with 17,853 last year. Decreases are also recorded in notifications of scarlet fever, diphtheria, pneumonia, cerebrospinal fever and whooping cough. Jameson advises all mothers of infants to take advantage of the black currant preparations made available through maternity and child welfare centers and food offices. There is black current juice for infants up to 6 months and black current purée for those from 6 months to 2 years of age.

### Reduction of Rationed Foods

In a broadcast the minister of food, Lord Woolton, said that our food position was so strong that he had been able to grant a winter bonus of rationed foods. But a new factor had arisen: the war with Japan. Much of our food had been coming across the Pacific Ocean. Ships that brought us food must now carry men and munitions to new places far over the seas, and we should have to manage with smaller imports for a time. We could for a time live on our present rations, but it would not be wise. It would be much more comfortable to cut our rations a bit and know that there was safety behind them. The weekly rations of the following goods are now reduced to the level

before an increase recently granted: sugar 8 ounces, butter and margarine 6 ounces, of which not more than 2 ounces may be butter; cooking fat 2 ounces. The cheese weekly ration will be reduced from 3 to 2 ounces. For the present a bigger ration will be allowed to certain classes of workers, and the ration for vegetarians and the diabetic will not be reduced.

### The Increased Use of Canned Foods

One of the most important dietetic changes brought about by the war is an increased use of canned foods. The Ministries of Food and Health have therefore made a joint announcement on these foods. They state that canned food compares favorably with cooked food. Articles for canning are selected with care and are canned almost at once before they have lost any of their nutritive value. Processing or sterilization is done with scientific care and less loss of nutritive value than in cooking on an open range. Chemically there is little risk of contamination with tin. Articles, such as acid fruits, which might attack tin are packed in lacquered cans, which give a high degree of protection. Little or no solder is now used to seal food cans. Bacteriologically, canned is less likely to be infected than fresh food. It is handled less, as most of the preparation is done by machinery, and it is sterilized after packing in the tin.

The life of canned foods varies with the article, the presence or absence of protective internal lacquer, and the temperature and humidity of the place of storage. The last acts only by producing rusting and eventually perforation of the tin. One year is given as the usual period for the storage of canned soft stoned fruits in a cool place. After that the food value is not impaired but the pack may appear less attractive and the natural acidity of the fruit may attack any scratched or damaged parts of the lacquer. Honey or jam should keep at least three years in lacquered cans. Vegetables store well for at least two years. They then become less attractive, but their food value remains unchanged. Fish, especially sardines and salmon, keep for over five years. So do meat packs (sausages, meat rolls, galantine, tongues, soups). Canned hams present a special problem; the packer usually guarantees them for only six months. But if after longer storage the can is not bulged, the contents are usually sound. Condensed milk keeps for varying periods according to the sugar content. Unsweetened condensed milk keeps for three years, sweetened full cream for six to nine months, after which the sugar may crystallize, but this is in no way objectionable. Dry milk powder should be used within a few weeks.

### Increase of Professional Fees

An inevitable result of war is increased prices, resulting in the first instance in scarcity of certain commodities resulting from diversion of industry into war channels. An effect of the increased cost of living is a demand by organized workers for an increased wage to meet this. The increased wage leads to a further increase in the cost of living. This process is known as inflation, and the government, which now controls the whole economy of the country, says that it is anxious to avoid this. Nevertheless it has been responsible for a good many increases in wages. If the process does not go too far we can stand it, as we can other evils. The General Practice Committee of the British Medical Association has recommended that the fees in private practice be increased by 20 per cent. Certain insurance companies have already increased from \$5 to \$6 the fee for life insurance examinations. The committee has decided to make representations to companies which have not yet taken this course. It has also decided to advise branches and divisions to secure readjustment of the salaries of district medical officerin view of the additional work in many areas and increased practice expenses. A wartime increase in the fees of public vaccinators is also advised and an application for the same increase in the fees of police surgeons. For medical officers of fire departments a fee of \$2.50 is advised for medical examination of entrants and for rendering first aid to persons injured at fires, if the attendance did not exceed half an hour.

## Use of Glass and Resins in Rebuilding Houses

In consequence of destruction by air raids there will be a good deal of rebuilding after the war, and improved forms of construction are already being discussed. In a lecture on "The Postwar Home: Its Interior and Equipment," Dr. E. Frankland Armstrong said that glass would soon be more widely used as a building material. There were toughened varieties at which stones could be thrown with impunity, and window glass which cut out the heat rays but admitted the health giving ultraviolet rays of the sun. Transparent synthetic resins would also supplant glass.

### MEXICO CITY

(From Our Regular Correspondent)

Feb. 20, 1942.

#### Tuberculosis in Mexico

The prevalence of tuberculosis in Mexico can be roughly estimated only through the available figures regarding its mortality. The tuberculosis death rate, including all forms of the disease, was 78.83 per hundred thousand in 1922, 68.71 in 1930 and 55.38 in 1938. Notification of cases to public health authorities is quite deficient, but it is believed that an average of 120,000 to 150,000 cases of all forms of tuberculosis exist, and that about 10 per cent of them are in the Federal District. Tuberculosis is more prevalent in the crowded districts of the cities than in the rural areas, although in places located on the coast and in the tropical zones, owing to the presence of malaria, hookworm disease, undernourishment and other ailments, the disease is widespread. In the mining districts in Pachuca City, Hidalgo, Guanajuato City, Guanajuato, and others, the presence of silicosis increases the infection. In the cities and ports of Tampico and Veracruz on the Gulf Coast and Mazatlán on the Pacific, the mortality rate is as high as 500 per hundred thousand. Along the northern border, especially in Nuevo Laredo and Matamoros, Tamaulipas, and Nogales, Sonora, the number of cases is high because of the large number of cases deported. The statistics of the sanatorium of Huipulco show that 68 per cent of patients arrive with bilateral lesions and that 50 per cent of the patients show cavities when entering. In addition to overfeeding the surgical treatment is the most used. The ambulatory treatment of patients with mild types of tuberculosis is extensively used in Mexico with a long rest in their homes supervised by specialized nurses.

During the last ten years several measures to fight against tuberculosis have been taken by the Division of Tuberculosis in the Federal Department of Health, the Department of Public Assistance and the National Tuberculosis Committee. number of beds for tuberculous patients in official institutions in Mexico amount to less than one thousand beds plus over one hundred in private hospitals. In the last six years the number of tuberculosis clinics has increased. There are eight in the Federal District and twenty-five scattered in the most stricken areas over the nation. A preventorium for children, supported by the Department of Public Education, with fifty beds is located in one of the suburbs of Mexico City. The Departments of Labor and Agriculture are doing their share in improving working conditions and encouraging proper feeding among people living in rural areas. During 1941 the National Tuberculosis Committee started a drive to raise funds which was followed by unexpected success, because in a short time the committee was able to collect about \$750,000 and the bureau of finances of the committee is studying the possibility of raising funds regularly, through the sale of a stamp and by a sort

of social security against the disease. Dr. Victor Fernandez Manero, federal director of health, appointed Dr. Nettali Rodríguez as chief of the division of tuberculosis, who was elected also president of the national tuberculosis committee. Licenciado Aarón Sáenz was elected treasurer general and Dr. Alejandro Berges executive secretary of the committee. The program for the present year includes the building of a sanatorium for children, hospitals for advanced cases, a preventorium and a rehabilitation farm in the Federal District, and two more sanatoriums on the Gulf and Pacific coasts, at a cost of about \$1,000,000, with which there will be about two thousand more beds available.

# Department of Health Manufactures Biologic Preparations

Chemists and bacteriologists working in the Institute of Hygiene of the Federal Department of Health have been increasing the manufacture of biologic preparations, chemicals and medicines to prevent the shortage of such products. Biologic preparations manufactured by the Institute of Hygiene are identical to the foreign ones used before the present situation developed, and the cost is much lower. Officials think that production can be increased for exportation. The Federal Department of Health through the Department of Economics has bought another ton of quinine to be distributed in the malaria zones. In a laboratory recently opened in Guatimoc, Chiapas, in which the cinchona plantation is located, the manufacture of quinine products as an experiment has started. President Camacho has issued an order that all cinchona trees and plantations must be in charge of the Federal Department of Health.

### Hospital Program in Mexico

According to a broadcast made by Dr. Gustavo Baz, minister of public assistance, last Sunday the federal government during the present year will encourage the building of hospitals in all large cities, the improvement of hospital and laboratory equipment all over the country and the building of a big medical center in Mexico City with all modern facilities for patients coming to the capital for treatment. Dr. Baz announced also that during the year work will be started on the Children's Hospital, the Mundet Maternity Hospital, the Infectious Disease Hospital, the Dental Institute and the Civil Hospitals of Monterrey, Tampico, Manzanillo and Juquilpan, besides clinics in Veracruz, Puebla, Tuxtla Gutierrez, San Luis Potosi and Sonora.

# Marriages

Simon Eugene Driskell to Miss Tallulah Scruggs Turner, both of Jacksonville. Fla., in St. Augustine, February 20

LEIGH FESTUS WATSON, Los Angeles, to Miss Pepita La Mone of Hollywood, Calif., in New York, January 6.

CREIGHTON WRENN, Mooresville, N. C., to Miss Charlotte Hutson Martin of Charlotte, February 17.

WILLIAM EDWIN DICKERSON, Danville, Va., to Mrs. Cecil
May Graeter of Richmond, January 3.

SOLOMON TANENBAUM, Augusta, Ga., to Miss Esther Ann

Cordish of Baltimore, January 18.

CHARLES D. SCHILLING, Charlottesville, Va., to Miss Alice

Thompson of Gretna, January 10.

EPHRAIM E. CAMP, Russellville, Ky., to Miss Ruth Bonham of Dresden, Ohio, January 25.

George Hollander to Dr. Beatrice Elsie Sterling, both of Philadelphia, January 25.

Byron Z. Binns, Monticello, Ark., to Miss Pauline Berry at Benton, January 17.

IVAN ISAACS, New York, to Miss Lola Hortense Schain of Brooklyn, February 11.

ROBERT H. ROBBINS, Waukegan, Ill., to Miss Rachel Eglert of Urbana recently.

### Deaths

Frank Leech ⊕ Washington, D. C.; Columbian University Medical Department, Washington, 1891; formerly clinical professor of medicine at his alma mater, now known as the George Washington University School of Medicine; served during World War I; lieutenant colonel, Medical Reserve, U. S. Army; past president of the Medical Society of the District of Columbia and of the Clinico-Pathological Society of Washington, D. C.; emeritus fellow of the American Academy of Pediatrics; served in various capacities on the staff of the Childrer's Hospital from 1892 until his retirement in 1938, when he was honored by a tablet citing his distinguished services to the institution, and his friends established the Frank Leech Laboratory Fund; formerly on the consulting staff of the Garfield Memorial Hospital; fellow of the American College of Physicians; aged 72; died, February 7, in the Walter Reed General Hospital of cerebral thrombosis.

John Joseph Killeen, Chicago; Jenner Medical College, Chicago, 1904; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; member of the Illinois State Medical Society; formerly assistant clinical professor of ear, nose and throat diseases at the Loyola University School of Medicine; assistant in ear, nose and throat diseases, Rush Medical College, Chicago, from 1907 to 1909; instructor in ear, nose and throat diseases, Chicago Policlinic from 1909 to 1911; surgeon for the Baltimore and Ohio Railroad from 1909 to 1914; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; consulting ear, nose and throat surgeon, U. S. Marine Hospital; otolaryngologist and attending surgeon, St. Anthony de Padua Hospital and St. Mary of Nazareth Hospital, where he died, March 17, aged 64.

Maynard Ladd, Newton Square, Pa.; Harvard Medical School, Boston, 1898; member of the Massachusetts Medical Society; past president of the American Pediatric Society and the New England Pediatric Society; assistant in physical chemistry from 1900 to 1902, assistant in diseases of children from 1900 to 1903, assistant in pediatrics from 1903 to 1906, instructor in pediatrics from 1906 to 1922 and associate in pediatrics from 1922 to 1938 at his alma mater; was deputy commissioner of the children's bureau of the American Red Cross in France and directed hospitals there during World War I; in 1934 was made an Officier d'Académie, France; consulting physician to the Children's Hospital; medical director of the preventive clinic, Boston Dispensary; aged 69; died, March 9, in Media of cardiorenal disease.

Daisy Maude Orleman Robinson & Washington, D. C.; Columbian University Medical Department, Washington, 1890; member of the Medical Society of the State of New York; joined the medical corps of the French army during World War I and later was transferred to the United States Army, with a commission as major; received decorations from both governments; formerly associated with the U. S. Public Health Service; at one time member of the state board of health of New York; aged 72; died, March 13, in St. Luke's Hospital, Jacksonville, Fla.

John Frederick Kuhn & Oklahoma City; Georgetown University School of Medicine, Washington, D. C., 1901; professor emeritus of gynecology at the University of Oklahoma School of Medicine; member of the Central Association of Obstetricians and gynecologists; fellow of the American College of Surgeons; member of the surgical staff of the State University and Crippled Children's Hospital; consulting surgeon, St. Anthony's Hospital; aged 69; died, February 14, in Decatur, Ga., of coronary thrombosis.

Bryan Charles Magennis, Paterson, N. J.; University of the City of New York Medical Department, New York, 1883; formerly a dentist; member of the Medical Society of New Jersey; past president of the Passaic County Medical Society; fellow of the American College of Surgeons; veteran of the Spanish-American War; at one time health officer and member of the city board of health; consulting surgeon, Paterson General and the Nathan and Miriam Barnert Memorial hospitals; aged 83; died, February 17.

Charles Barnett Reynolds, Philadelphia: Medico-Chirurgical College of Philadelphia, 1899; fellow of the American College of Surgeons; served during World War I; formerly associate professor of obstetrics at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; on the courtesy staff of the Graduate Hospital; visiting gyne-

cologist of the Germantown, Jewish, Presbyterian and Hahnemann hospitals; aged 69; died, March 1, of carcinoma of the rectum.

Henry Wilbur Irwin, Indianapolis; University of California Medical School, San Francisco, 1910; member of the Indiana State Medical Association; served during World War I; formerly a medical missionary in China and instructor at the West China Union University School of Medicine at Chengtu, Szechwan, China; aged 60; on the staffs of St. Francis Hospital, Methodist Hospital, Indiana University Hospital and St. Vincent's Hospital, where he died, February 8, of bronchopneumonia.

Jacob Joshua Levy, Syracuse, N. Y.; Syracuse University College of Medicine, 1903; member of the Medical Society of the State of New York, American Roentgen Ray Society and the Radiological Society of North America, Inc.; associate professor of clinical medicine in physical therapy at his alma mater; on the staff of the University Hospital of the Good Shepherd; aged 62; died, February 22, in Rochester, Minn., of acute myelogenous leukemia.

Hermann Fischer ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1896; an Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; member of the American Association for Thoracic Surgery; formerly clinical professor of surgery at the New York University College of Medicine; on the staff of the Lenox Hill Hospital; aged 70; died, March 5, of coronary thrombosis.

Fuad Isa Shatara Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1916; fellow of the American College of Surgeons; instructor in the department of anatomy at the Long Island College Hospital from 1924 to 1929; visiting surgeon and chief, traumatic service, Cumberland Hospital; member, surgical courtesy staff, Harbor Hospital; surgeon, Prospect Heights Hospital; aged 48; died, January 8.

Dorsey Mahon McPherson ⊕ Washington, D. C.; Howard University College of Medicine, Washington, 1877; Columbian University Medical Department, Washington, 1884; joined the medical corps of the Army and served two years in the field with the Indian Scouts and the Sixth Cavalry; served as medical examiner of pensions and later as medical expert in the office of the Secretary of the Interior; aged 84; died, March 2.

Harold Carl Goodwin, Springfield, Mass.; Dartmouth Medical School, Hanover, N. H., 1900; member of the Massachusetts Medical Society; division examiner of prisoners for the commonwealth of Massachusetts; at one time superintendent of the Albany (N. Y.) Hospital; on the staffs of the Mary Lane Hospital, Ware, and of the Mercy and Wesson Memorial hospitals; aged 63; died, March 1, of coronary thrombosis.

Charles Wilson Doughtie ⊕ Norfolk, Va.; Medical College of Virginia, Richmond, 1898; fellow of the American College of Surgeons; past president of the Norfolk County Medical Society; served on the staff of the Norfolk General Hospital in various capacities; for many years surgeon to the Norfolk and Western Railway; member of a draft board during World War I; aged 65; died, March 5, of pulmonary embolism.

Lionel David Prince & San Francisco; University of California Medical Department, San Francisco, 1912; member of the American Academy of Orthopedic Surgeons; fellow of the American College of Surgeons; past president of the Western Orthopedic Association; served during World War I; chief orthopedic surgeon, Mount Zion Hospital; aged 55; died, March 6, in the University of California Hospital.

Archibald Addison Alexander, Oakland, Calif.; University of California Medical Department, San Francisco, 1907; member of the California Medical Association; fellow of the American College of Physicians; chief in cardiology, Samuel Merritt Hospital; associate in medicine, Alameda County Hospital; consultant in cardiology, Children's Hospital of the East Bay; aged 61; died, January 17.

James Brodie Ross, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1924; assistant professor of medicine at his alma mater; member of the American Clinical and Climatological Association; secretary of the medical board of the Montreal General Hospital; formerly medical superintendent of the Children's Memorial Hospital; aged 41; died, March 7.

Dennis David Daly, Ellenburg Depot, N. Y.; Syracuse University College of Medicine, 1901; member of the Medical Society of the State of New York; had been health officer for many years of several Clinton County communities at intervals

since 1904; formerly member of the board of education; aged 66; died, February 5, of ventricular fibrillation, coronary occlusion and sclerosis.

Carolyn N. Macdonald & Chicago; Rush Medical College, Chicago, 1925; formerly clinical assistant in urology at the Northwestern University Medical School; past president and vice president of the Chicago Council of Medical Women; on the staff of the Women and Children's Hospital; aged 54; died, February 20, in St. Luke's Hospital of chronic nephritis and uremia.

Dana W. Kingsbury € Nanticoke, Pa.; College of Physicians and Surgeons, Baltimore, 1882; an Affiliate Fellow of the American Medical Association; was a member of the draft board during World War I; member of the board of education; for many years surgeon for the Pennsylvania Railroad Company; aged 89; died, February 8, of arteriosclerotic heart disease.

William De Lue Anderson, Portland, Maine; Medical School of Maine, Portland, 1915; also a pharmacist; fellow of the American College of Surgeons; member of the Maine Medical Association; formerly county medical examiner; associate_surgeon, Maine General Hospital; surgeon, Maine Eye and Ear Infirmary; aged 61; died, March 1, of coronary thrombosis.

Adolph Von Prief Fardelmann @ Brooklyn; Long Island College Hospital, Brooklyn, 1916; fellow of the American College of Surgeons; president of the Brooklyn Surgical Society; surgeon during World War I; aged 48; courtesy surgeon, St. John's Hospital; on the staffs of the Lutheran Hospital and the Bushwick Hospital, where he died, February 17.

Rowland William Hall & Jackson, Miss.; University of Nashville (Tenn.) Medical Department, 1901; past president of the Central Medical Society; member of the American Academy of Dermatology and Syphilology; at one time registrar of vital statistics, state board of health; aged 66; died, February 14, at his home in Clinton.

Dora Van Buren Burkett, Columbus, Ohio; Ohio Medical University, Columbus, 1902; member of the Ohio State Medical Association; veteran of the Spanish-American War and World War I; formerly a lieutenant colonel and chief surgeon of the Ohio National Guard; aged 69; died, March 2, of coronary sclerosis and arteriosclerosis.

David Henry Lawrence, Big Spring, Texas; University of Texas School of Medicine, Galveston, 1902; member of the State Medical Association of Texas; served during World War I; formerly associated with the U. S. Veterans Bureau; on the staff of the Big Spring State Hospital; aged 66; died, February 5, of coronary disease.

David Stewart Fettes, Brooklyn; Long Island College Hospital, Brooklyn, 1907; member of the Medical Society of the State of New York; served during Warld War I; assistant visiting surgeon on the staff of the Cumberland Hospital; secretary of the medical board of the Madison Park Hospital; aged 61; died, February 16.

Henry Bacon, Jacksonville, Fla.; Bellevue Hospital Medical College, New York, 1883; member of the Florida Medical Association; was retired with rank of brigadier general after nearly twenty-five years of service in the Florida National Guard; for many years on the staff of St. Luke's Hospital; aged 84; died, February 8.

Robert Black Hopkins & Milton, Del.; Jefferson Medical College of Philadelphia, 1887; past president of the Medical Society of Delaware; member of the board of education of Milton and past president of the county board of education; formerly mayor; at one time member of the state legislature; aged 76; died, March 8.

Jack Halton, Sarasota, Fla.; Miami Medical College, Cinrantinati, 1895; member and formerly vice president of the Florida Medical Association; past president of the Florida Railway Surgeons Association; served during World War I; aged 73; died, February 26, in St. Petersburg of coronary

thrombosis.

George Joseph Tusson, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1901; assistant demonstrator in the microscopic laboratory at his alma mater, 1907-1908; veteran of the Spanish-American War; on the staff of the French Hospital; aged 74; died, January 17.

Joseph Wright McCready & Newburgh, N. Y.; Beltevue Hospital Medical College, New York, 1888; an Affiliate Fellow of the American Medical Association; member of the Medical Society of the State of New York; aged 78; died. Dec. 31, 1941, of cerebral hemorrhage, hypertension and arteriosclerosis.

Albert Frederick Ullman, New York; Friedrich-Wilhelms-

Albert Frederick Ullman, New York; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany,

1914; member of the Medical Society of the State of New York; on the staff of the Hospital for Joint Diseases; aged 52; died, January 20, in Bellevue Hospital.

Franz Pfister, Milwaukee; University of Wooster Medical Department, Cleveland, 1895; past president of the Milwaukee County Medical Society; formerly professor of ear, nose and throat at the Marquette University School of Medicine; aged 81. died March 2 of pregumnia 81; died, March 2, of pneumonia.

C. Curtis Hudson & Greensboro, N. C.; University College of Medicine, Richmond, Va., 1910; served during World War I; health officer; formerly health officer of Danville, Va. Charlotte, N. C., and Richmond, Va.; aged 60; died, February 17, of coronary occlusion.

Frederick Prescott Batchelder, Boston; Boston University School of Medicine, 1891; professor emeritus of physiology at his alma mater; consultant on the staff of the Massachusetts Memorial Hospitals; aged 77; died, February 14, of car-

cinoma of the left kidney.

James Thomas Ferrell, Chapmanville, W. Va.; Chicago College of Medicine and Surgery, 1913; member of the West Virginia State Medical Association; aged 56; died, February 9, in a hospital at Huntington of anaphylactic shock and hypertrophy of the prostate.

Arthur M. Bishop, Good Hope, Ill.; Northwestern University Medical School, Chicago, 1898; member of the Illinois State Medical Society; aged 70; died, January 11, in St. Luke's Hospital, St. Louis, of injuries received in an automobile accident on Dec. 30, 1941.

Franklin Herbert Hagerman, Milwaukee; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1892 member of the State Medical Society of Wisconsin; aged 89 died, February 1, in the Milwaukee Hospital of carcinoma of the bladder.

Andrew Peters & Springfield, Mass.; Columbia University College of Physicians and Surgeons, New York, 1914; member of the American College of Chest Physicians; chief, tuberculosis service, Health Department Hospital; aged 51; died, January 8.

George Van Wyland & Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; on the staff of St. Anne's Hospital; aged 71; died, March 23, of injuries received in an automobile accident.

George Irvine I. Ireland, Tyler, Pa.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1923; member of the Medical Society of the State of Pennsylvania; aged 41; died, February 8, in Mill Run of malignant hypertension.

Joseph E. Hawley, Burr Oak, Kan.; St. Joseph (Mo)
Hospital Medical College, 1882; member of the Kansas Medical Society; past president of the Jewell County Medical
Society; aged 89; died, February 11, of hypostatic pneumonia
Peter Joseph Fleming, Boston; University of Western
Ontario Medical School, London, Ont., Canada, 1902; member
of the Massachusetts Medical Society; aged 66; died, Dec. 15,
1941 of chronic lymphatic leukemia and bronchopneumonia.
Thomas Buffington Bird, Baton Rouge, La: Tulane Upi-

Thomas Buffington Bird, Baton Rouge, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1914; member of the Louisiana State Medical Society; served during World War I; aged 54; died, February 6, of carcinoma.

Perry Arneld Kondall & Cross-condition and Line of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Condense of the Con

Perry Arnold Kendall & Crothersville, Ind.; University of Louisville (Ky.) Medical Department, 1893; aged 72; diel. February 1, in St. Joseph's Infirmary, Louisville, Ky., of diabetes mellitus astronomy.

February 1, in St. Joseph's Infirmary, Louisville, Ky., of the betes mellitus, arteriosclerosis and ulcer of the stomach.

Scott M. Huff, Belleville, N. J.; Jefferson Medical College of Philadelphia, 1893; served during World War I; formerly on the staff of the Veterans Administration Facility, Lyons; aged 73; died, February 25, of cerebral hemorrhage.

Charles Howard Dalton & Somerville, Mass.; McG'l University Faculty of Medicine, Montreal, Que., Canada, 191; on the staff of the Somerville Hospital; aged 65; died, February 12, of coronary thrombosis.

Joseph Casimer Ciesla. Chicago: University of Illinging

Joseph Casimer Ciesla, Chicago; University of Illinois College of Medicine, Chicago, 1927; member of the Illinois State Medical Society; aged 39; died, February 14, in New Mexico of pulmonary tuberculosis.

Tohn Richard Rozeth Minni Else, De to Medical College of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Mexico of Parasth Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else, De to Minni Else

John Richard Bozarth, Miami, Fla.; Rush Medical College, Chicago, 1891; aged 71; died, February 3, in the Jack Memorial Henrical of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Proper Memorial Hospital of bronchogenic carcinoma of the risk

lung and pleurisy with effusion.

Frank Joseph Kosek, Wilkes-Barre. Pa.; University (ithe South Medical Department, Sewanee, Tenn., 1994; interpretation of the prostate.

DEATHS 1387

James Charles Pecl, € Cleveland; Ohio State University College of Medicine, Columbus, 1922; served during World War I; aged 47; died, January 9, at his home in Brecksville, Ohio, of coronary occlusion.

William P. Knight & Greensboro, N. C.; Baltimore Medical College, 1898; past president of the Guilford County Medical Society; aged 69; died, February 2, in St. Leo's Hospital of carcinoma of the lung.

Samuel James Herman, Detroit; Maryland Medical College, Baltimore, 1900; Baltimore Medical College, 1901; aged 68; died, February 20, in Los Angeles of multiple septic cerebral emboli and lung abscess.

Leon Grotowski ⊕ Chicago; Chicago College of Medicine and Surgery, 1913; served during World War I; on the staff of St. Mary of Nazareth Hospital; aged 63; died, February 4, of coronary occlusion.

Joseph Maurice Becker, Washington, D. C.; Georgetown University School of Medicine, Washington, 1934; member of the Medical and Chirurgical Faculty of Maryland; aged 33; died, January 14.

Alois Friedrich Haas, Rutland, Mass.; Medizinische Fakultät der Universität Wien, Austria, 1937; aged 28; died, February 14, in the State Sanatorium of tuberculosis of the lungs and larynx.

Anthony Augustus O'Neill, Chicago: Kansas City (Mo.) Medical College, 1890; member of the Illinois State Medical Society; fellow of the American College of Surgeons; aged 82; died, January 4.

James Luther Adams & Hobart, Okla.; College of Physicians and Surgeons, Little Rock, Ark., 1910; county health superintendent; aged 62; died, Dec. 31, 1941, of coronary thrombosis.

Frederick William Heath & Oakdale, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1933; aged 37; died, January 27, in a hospital at Alexandria of pneumonia.

Okey N. Windle, Sayre, Okla.; Maryland Medical College, Baltimore, 1905; member of the Oklahoma State Medical Association; aged 58; died, January 3, of coronary occlusion.

Isaac H. Lane, La Grange, Ga.; Atlanta Medical College, 1891; member of the Medical Association of Georgia; aged 75; died, February 25, of nephritis and coronary thrombosis.

James Christian Chestnut ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1897; on the staff of the Stetson Hospital; aged 66; died, January 28.

William Henry Hicks, Newark, N. J.; University of the City of New York Medical Department, 1893; aged 77; died, February 13, of chronic myocarditis and chronic prostatitis.

Claude Alvah Horton, Glens Falls, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1892; aged 75; died, February 14, of myocarditis.

Austin Taylor Bryant, McKinney, Texas; Memphis (Tenn.) Hospital Medical College, 1894; aged 81; died, February 11, of coronary thrombosis.

John E. Lawson, Jeffersonville, Ind.; University of Louisville (Ky.) Medical Department, 1874; aged 87; died, February 15, of arteriosclerosis and uremia.

William Elmo Arthur € Cardiff, Md.; University of Maryland School of Medicine, Baltimore, 1892; bank president; aged 73; died, January 2.

Charles W. Boush, Beavertown, Pa.; Baltimore University School of Medicine, 1893; aged 73; died, January 26, of chronic myocarditis and arteriosclerosis.

William Robert Gaddle & Duenweg, Mo.; Hospital College of Medicine, Louisville, Ky., 1898; aged 71; died, January 11, of coronary occlusion.

Chester Harlow Gould, Pasadena, Calif.; Boston University School of Medicine, 1896; aged 70; died, February 8, in a local hospital of pneumonia.

Isaac Bright Hines, Fresno, Calif.; Boston University School of Medicine, 1890; aged 85; died, February 18, in St. Agnes Hospital of pneumonia.

Henry Francis Sears, Boston; Harvard Medical School, Boston, 1887; member of the Massachusetts Medical Society; aged 79; died, January 1.

aged 79; died, January 1.

Theodore Ferdinand Segelcke, Brooklyn; Long Island College Hospital, Brooklyn, 1898; aged 65; died, January 13, of coronary thrombosis.

Andrew Charles Topie, Cincinnati; Medical College of Ohio, Cincinnati, 1899; aged 73; died, January 6, of diabetes mellitus and pneumonia.

Campbell McGavern Chapman, Des Moines, Iowa; Rush Medical College, Chicago, 1894; aged 73, died February 13, in Miami, Fla., of heart disease.

Walter Irving Stockton, Siler City, N. C.: College of Physicians and Surgeons, Baltimore, 1914; aged 51; died, January 16, in Pittsboro.

Arthur W. Wilson, Chicago; Bennett Medical College, Chicago, 1903; aged 74; died, January 22, in Los Angeles of cerebral hemorrhage.

Joseph Watry, Evanston, Ill.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 78; died, January 22, of coronary sclerosis.

G. P. Fisher, Ethel, W. Va.; Kentucky School of Medicine, Louisville, 1908; aged 68; died, February 9, in Pocataligo of diabetes mellitus.

William T. Henry, Stevensville, Md.; College of Physicians and Surgeons, Baltimore, 1896; aged 72; died, January 25, of hemiplegia.

Ottul Klaranus Lindboe, Lac Qui Parle, Minn.; Rush Medical College, Chicago, 1887; aged 90; died, February 5, of myocarditis.

James Thomas Dean, Moorhead, Miss.; Louisville (Ky.) Medical College, 1891; aged 82; died, February 3, of chronic myocarditis.

Howard Riely Moore, Charles Town, W. Va.; College of Physicians and Surgeons, Baltimore, 1883; aged 80; died, January 10.

Perry Dickie, New York; New York Homeopathic Medical College, 1880; aged 85; died, January 20, of bronchopneumonia.

Charles Mead Griffin, West Tisbury, Mass.; Bellevue Hospital Medical College, New York, 1881; aged 84; died, Dec. 15, 1941.

William Carter, Chicago; National Medical University, Chicago, 1904; aged 71; died, January 4, in the Provident Hospital.

William Keer Fouts, Dallas, Texas; University of Louisville (Ky.) Medical Department, 1888; aged 73; died, January 15.

Martin V. Newman, Fouke, Ark. (licensed in Arkansas in 1903); aged 66; died, January 8, of carcinoma of the gall-bladder.

Joseph Maybank, Charleston, S. C.; University of Maryland School of Medicine, Baltimore, 1889; aged 72; died, January 2.

Solomon F. Oden, Brentwood, Tenn.; University of Nashville (Tenn.) Medical Department, 1872; aged 93; died January 6.

George Kennedy Frink, San Francisco; Medical College of the Pacific, San Francisco, 1887; aged 81; died, January 23.

William Augustus Griffith, Covina, Calif.; Long Island College Hospital, Brooklyn, 1889; aged 83; died, January 20.

Justus O. Enzor, Baker, Fla.; Medical College of Alabama, Mobile, 1901; aged 64; was found shot and killed, February 23.

Harper Ancel Wright, Duncansville, Pa.; Baltimore University School of Medicine, 1904; aged 60; died, January 6.

### DIED IN MILITARY SERVICE

Ira Brown € Chicago; University of Oklahoma School of Medicine, Oklahoma City, 1932; was appointed a first lieutenant in the medical reserve corps of the U. S. Army, Oct. 16, 1935; became a captain April 11, 1940 and a major Feb. 1, 1942; fellow of the American College of Surgeons; formerly clinical instructor of gynecology and obstetrics at the University of Chicago, The School of Medicine; at one time associate in obstetrics and gynecology at the Chicago Lying-in Hospital and Dispensary; aged 35; was burned to death, April 10, when a fire destroyed an officers' barracks at Camp Grant, Ill.

Harry Sage Gorelick, Detroit; University of Michigan Medical School, Ann Arbor, 1930; member of the Michigan State Medical Society; commissioned a first lieutenant in the medical reserve corps of the U. S. Army March 29, 1934 and promoted to captain, July 5, 1941; formerly on the staff of the City of Detroit Receiving Hospital; aged 35; was burned to death, April 10, when a fire destroyed an officers' barracks at Camp Grant, Ill.

## Bureau of Investigation

# THEODORE MARGOLIN—A MODERN PROTEUS

He Promoted One Fraud One Day, Another the Next
A man of rare gifts is Theodore Margolin of Brooklyn. In
his pursuit of profitable schemes to foist on a trusting public,
not even the Post Office fraud orders that have been issued to
debar his schemes from the mails have seemed to discourage
him; he has gone merrily on his way developing new swindles
to separate the credulous from their money. Apparently without training in medicine or chemistry, Margolin blossomed out
as an alleged expert in bust development. Under his own name
and a fancier trade style, "Developex Company," he advertised
and sold through the mails what he called "Developex" for
increasing the size of the bust and building up "thin or
unshapely" legs to attractive proportions. For either condition his treatment constituted "a new and easy method."

It mattered not to Mr. Margolin that other "bust developers" had at various times run afoul of the postal laws and been banned from the mails by Post Office fraud orders. But the day came when the government caught up with him. After due investigation of his scheme the Post Office on June 12, 1941 ordered him to show cause why a fraud order should not be issued and the mails closed to his scheme. Even after Margolin had obtained several postponements he did not appear at the hearing when it finally occurred on August 8, nor did any one else appear there to represent him.

Nothing more wonderful than lanolin (hydrous wool fat), cocoa butter and a little water and perfume was found to make up Developex, according to the testimony of a government chemist who had analyzed it. Such a mixture contributed nothing new to medical science, as shown by an expert medical witness for the government, since hydrous wool fat and cocoa butter have for years been familiar substances to the medical profession and used chiefly as bases for ointments. This witness further testified that flat, undeveloped or sagging breasts are due to various causes, such as underweight, undernourishment, hypothyroidism, tuberculosis, anemia and failure of the endocrine glands to develop. Further, sagging breasts may result from prolonged nursing after pregnancy. He proceeded to show that a mixture like Developex could not affect the glandular system which controls the bust development or tighten or shorten the fibrous supporting bands of breasts which have been stretched by overlactation. Hence, he testified, the product is worthless for effecting any change in the size or contour of the breasts.

"Thin or unshapely" legs, this witness further testified, may be due to any one of many causes such as underweight, undernourishment, debilitating, chronic diseases, hereditary influences, glandular disorders, mineral and vitamin deficiency, bony deformities, bowlegs, knock-knees, misshapen feet and other factors. Developex of itself, he pointed out, would have no effect on the size or shape of the legs or on any disorder which might cause the legs to be thin or unshapely because it would not build up the tissues or affect the fat deposits in the body, since any absorption which it might bring about through the skin would be inconsequential.

As a result of the foregoing evidence, the Post Office on Nov. 27, 1941 issued a fraud order against the Developex Company of Brooklyn, Theodore Margolin and their officers and agents. On the same date a similar order was brought against the Legalure Company of Brooklyn and its officers and agents. The Legalure name was the trade style under which Margolin had promoted "Legalure Method," another nostrum that was supposed to make unsightly legs attractive. Its advertising blurbs were similar to those of Developex. When this case, after several postponements, finally reached a hearing on Aug. 8, 1941 neither Margolin nor any one representing him appeared to offer a defense, though a written answer denying

the charges of fraud had been submitted. A government chemist who had analyzed the cream which constituted the "treatment" testified that it consisted of a white, oily ointment of which 1.1 per cent was camphor, 8.37 per cent water and the rest fats, oils and wax, with a trace of perfume. Hence it seems to have been similar to, if not entirely identical with, Margolin's other "leg beautifier," Developex.

An expert medical witness for the government gave testimony regarding this second "leg developer" and showed it to be equally worthless. He stated further that the use of the Legalure Method might even prove dangerous to the user in instances in which diseases causing unattractive legs might call for exercises, and these the customer might neglect in favor of Legalure. Altogether the treatment was shown to be as worthless as Developex, and hence the companion fraud order against it.

But Margolin had by no means run out of anatomy for correction. Though forbidden longer to pretend to beautify America's busts and legs, he could at least claim to reduce the obese and adorn the bald—until the Post Office again might catch up with him. Soon he was angling for the two most gullible types of suckers—the fat woman who yearns for svelt lines and the bald-headed man who hopes for a hair restorer.

As an illustration of his total disregard for Post Office fraud orders, ". . . Margolin, having been advised that a fraud order was issued against Thinalax Co., at Jersey City, New Jersey, on February 10, 1941, and that another fraud order was issued against Grohair Company, at Jersey City, New Jersey, on February 15, 1941, both of which concerns were at that time owned by one Harry Hitter, purchased from said Hitter the stock in trade of said concerns, including the products known as 'Thinalax' and 'Grohair,' the mailing lists of said concerns, and the names and addresses of all persons who had been provided with the advertising literature of said concerns. . . "

Hitter's nostrum "Thinalax" was reported by a government chemist to consist of pink coated pills whose essential constituents were extracts of belladonna and cascara sagrada with aloin, podophyllum and oleoresin of ginger. Although the advertising gave the impression that the user of these pills would not have to follow a diet, the treatment was accompanied by a "Slenderizing Menu for the Week" which prescribed what the Post Office called "an extremely limited dietary, both as to quantity and character of food permitted." A physician who testified for the government at the hearing of this case declared that the diet list in question amounted to a starvation regimen. He further testified that among other things the use of these pills would tend to produce a laxative habit-one of the conditions that the promotor warned against in the directions that came with the pills! Less than ten months later, on Dec. 3, 1941, a Post Office fraud order was issued which barred Margolin's Thinalax Company from the mails.

Hitter's nostrum "Grohair" was promoted with representations that it would grow a full head of hair on any one who used it, "no matter what condition" the user's hair was in or even if he was completely bald. According to the government chemist who analyzed it, the stuff was a hydroalcoholic liquid containing about 14 per cent of kerosene, 15 per cent of castor oil and 0.11 per cent of betanaphthol with about 60 per cent of alcohol, the remainder being water. Grohair was the second of Hitter's swindles to be scotched by a Post Office fraud order, which was issued on Feb. 15, 1941. Some time thereafter, it is reported, the business was taken over by Margolin, who purchased from Hitter all of the stock in trade, mailing lists and names of customers, just as he had done with Hitter's Thinalax Company. But, as in his experience with the latter business, a fraud order put an end to his Grohair enterprise, on Dec. 3, 1941.

From the record, do not be surprised to find Margolin blossoming out some time with a "cure" for projecting rears or flapping ears. And then of course the Post Office Department will investigate and there will be another fraud order, and so on and on and on through the years.

## Correspondence

#### VITAMIN K FOR THE NEWBORN

To the Editor:—Is administration of vitamin K to the newborn of clinical value? This question has been answered guardedly by Sanford and associates in The Journal of February 28 but confidently by Quick in a communication to The Journal of March 21. The difference of opinion represents the chasm between a clinical and a chemical evaluation of the problem. Not all hemorrhagic manifestations in the newborn are due to acute hypothrombinemia, and not all cases of "hemorrhagic disease of the newborn" are due to diminution in blood prothrombin.

The clotting mechanism may be defective in platelets, leading to thrombocytopenic purpura; in platelet function, leading to thrombopathy; in fibrinogen, leading to fibrinogenopenia; in vascular resistance, leading to allergic, infectious or toxic purpura. The clotting mechanism may be normal, and yet bleeding may occur from vascular injury incident to the birth process. In the past, hemorrhagic disease of the newborn was a syndrome attributed to any defect in the clotting mechanism excluding vascular injury. Today, hemorrhagic disease of the newborn is a disease entity due specifically to prothrombin deficiency. This concept was formulated by me from 9 case reports published in The Journal Sept. 10, 1932, page 895.

Acute hypoprothrombinemia in the newborn is the only condition that responds promptly to vitamin K therapy. Since the disease occurs in less than 0.5 per cent of all newborn infants it is folly to waste vitamin K on 99.5 per cent of the remainder, even if many of these may show hemorrhagic manifestations! If the latent hemorrhagic tendency present in all newborn infants becomes active, the rise in clotting time will indicate decrease in available prothrombin. Then and only then is vitamin K therapy indicated.

I. NEWTON KUGELMASS, M.D., New York.

To the Editor.—Dr. Sanford and his associates in an article entitled "Is Administration of Vitamin K to the Newborn of Clinical Value?" (The Journal, February 28, p. 697) seriously question the value of vitamin K in the prophylaxis and treatment of hypoprothrombinemia and associated hemorrhage of the newborn. I am forced to join with Dr. Quick in taking prompt and sharp exception to Dr. Sanford's conclusions.

Early in 1939 in a brief preliminary article my associates and I called attention to the prompt and efficient action of vitamin K in the prevention and treatment of hypoprothrombinemia and hemorrhage in the newborn and have repeatedly stated that hemorrhagic disease would not occur in any infant adequately protected with vitamin K. We have also repeatedly expressed the hope, adequately supported by facts, that infant mortality resulting from intracranial hemorrhage will in the future possibly be materially reduced by this sound therapeutic procedure. Just how well these therapeutic suggestions have proved to be accomplished facts is well attested by the rapidly accumulating literature on this subject. With the single exception of Dr. Sanford there would seem to be complete agreement among all investigators of this subject. As Dr. Quick points out, the efficiency of vitamin K in the prevention and treatment of hemorrhagic disease of the newborn is "unequivocally and emphatically" proved. Having recorded more than two thousand prothrombin time determinations and treated an equal number of infants with vitamin K, I cannot agree with Dr. Sanford in his conclusions. I have yet to see recorded a single case of hemorrhagic disease with associated prothrombin deficiency occurring in any infant adequately protected with vitamin K, and it should be emphasized that treated infants now can be numbered in the thousands.

Dr. Sanford's series of only 42 infants treated with vitamin K through the mothers certainly does not justify any discussion concerning the possible reduction in the mortality rate of intracranial hemorrhage. Certainly his figures can hardly be compared with those of Hellman and Shettles (South. M. J. 35:289 [March] 1942). Their mortality of 1.9 per-cent among 1,042 infants treated through the mother compared to a mortality of 3.9 per cent among 1,206 untreated infants, with the odds against this being an accident 194.7 to 1, is most convincing. Beck, working in three different hospitals, was able to reduce his infant mortality rate by 3:1. Such convincing reports can hardly be accidental.

Dr. Sanford's experience with the rates of hemorrhage in treated and control groups of infants differs considerably from our own observations and those of Beck (Am. J. Obst. & Gynec. 41:765 [May] 1941):

	Controls, Cases	Incidence of Hemorrhage, per Cent	Treated, Cases	Incidence of Heinorrhage, per Cent
Sanford	982	6.6	711	6.59
Beck	1,037	2.0	1,022	0.5
Waddell	219	10.4	1,118	1.07

There seems no good reason why Sanford should be able to show any reduction in the rate of cerebral accidents, since in his series the infant was not treated through the mother. Beck's series tells a different story, with 14 instances of intracranial hemorrhage in a group of 1,037 controls as contrasted with 4 instances of intracranial hemorrhage among 1,022 treated infants.

I had the privilege of assisting in a round table discussion of hemorrhage in the newborn at the recent meeting of the American Academy of Pediatrics. Associated with me in these discussions were Drs. Clifford, Poncher and Snelling, all of whom have had intimate experience with the therapeutic efficiency of vitamin K. All four members of this round table discussion were in complete agreement concerning the role of vitamin K in the prevention and treatment of hypoprothrom-binemia and hemorrhage in the newborn. These discussions will shortly be published.

I hope, Mr. Editor, in fairness to infants yet to be born and liable to the potential danger of latent hypoprothrombinemia, that you will give this communication early publication. I trust that those members of the medical profession not conversant with the current literature on this subject will not be encouraged to deny to newborn infants a proved and efficient therapeutic agent.

W. W. WADDELL JR., M.D., University, Va.

## PHONOGRAPHIC RECORDING OF HEART SOUNDS

To the Editor:—There has been some correspondence in The Journal in recent weeks about phonographic recording of heart sounds.

For historical interest, I would add that Dr. Richard Cabot made such recordings from Oct. 31, 1925 to Jan. 6, 1926 in New York City with the Columbia Phonograph Company, now the Columbia Recording Corporation. I have some of his old records, which are interesting rather because of their excellent reproduction of Dr. Cabot's voice than for their value in phonocardiography, a characteristic still true of many other such records, though improvements are in progress in the effort to develop this procedure into a practical method of teaching and of recording.

Paul D. White, M.D., Boston.

# Council on Medical Education and Hospitals

# CONTINUATION COURSES FOR PRACTICING PHYSICIANS

In accordance with the plan of the Council on Medical Education and Hospitals, advance information concerning continuation courses for practicing physicians available in the various centers is published quarterly. The following list consists of courses beginning during the period April 20-July 20, 1942. It is hoped that this material will be useful to the practicing physician who is planning to take postgraduate work but does not have a ready means of knowing when and where the subjects in which he is interested will be taught. Since many of the classes are necessarily limited, those who contemplate enrolling in any of these courses are urged to communicate as early as possible with the proper executive officer.

H. G. WEISKOTTEN, M.D., Secretary, Council on Medical Education and Hospitals.

Continuation Courses for Practicing Physicians, April 20-July 20, 1942

	0	Length and	Number o	f Registrati	
Institution ALLERGY	Courses Begin	Content of Course	Students Accepted		
Harvard Medical School, Courses for Graduates	July 6	Full time, 2 weeks; diagnosis and treat- ment, prep. of vaccines	61	\$50	Dr. Frank R. Ober, Asst. Dean, Harre Medical School, 25 Shattuck Street, Boston, Massachusetts
New York University College of Med- icine	May 15	MWF afternoons; lab.	Limited 2	\$150	Dr. Currier McEwen, Dean, New York
	July 16	MWF afternoons; hypersensitivity 6 mo.			University College of Medicine, 477 First Avenue, New York City
Tufts Medical School, Post-Graduate Division	May 18	1 week; lectures, clinic demonstrations	Minimum:	6 \$25°	Dr. Samuel Proger, Chairman, Post- Graduate Division, Tutts Medical School, Boston, Mass.
University of Michigan, Department of Post-Graduate Medicine	May 11	5 days	*****	910 925	Dr. James D. Bruce, Chairman, Depa ment of Post-Graduate Medicine, U versity of Michigan, 1313 E. Ann Stre Ann Arbor, Mich.
University of Pennsylvania, Graduate School of Medicine .	Arranged on application	4 weeks, about 40 hours	Individual	<b>4</b> \$150	Dr. R. C. Buerki, Dean, Graduate School Medicine, The Medico Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
ANATOMY—See also Gynecology, Otolar				Conta	
Harvard Medical School, Courses for Graduates	July 6	Full time, 6 weeks; microscopic anatomy	*****	\$60 a a	Dr. Frank R. Ober, Asst. Dean, Harra Medical School, 25 Shattuck Street, Boston, Massachusetts
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	60 hours; applied anatomy of the urogenital system	•••	\$150 <b>6</b>	Dr. J. A. W. Hetrick, Acting Dean, N. York Medical College, Flower and Fil Avenue Hospitals, 5th Ave. at 100 St., New York City
	Arranged on application	of hours; applied anatomy of ear, nose and throat	•••••	\$150 6	,
	Arranged on application	90 hours: applied anatomy of pelvis and abdomen	*****	9250	
	Arranged on application	100 hours; surgical anatomy 7	•• •••	\$250	
ANESTHESIOLOGY Columbia University, including the New York Post-Graduate Medical School	Arranged on application	12 sessions	344	\$75 °	The Director, Columbia University School of Medicine, 300 East 20th Street, New York City
	When a vacancy occurs	2 weeks, or 3 weeks if desired	14	\$100 \$130	
Harvard Medical School, Courses for Graduates	Monthly	Arranged on application	3	\$30	Dr. Frank R. Ober, Asst. Dean, Harrar Medical School, 25 Shattnek Street, Boston, Massachusetts
New York Polyclinic Medical School	1st of any month between Oct. 1 and June 30	Arranged on application		Arranged	Dr. F. H. Dillingham, Executive Officer New York Polyellole Medical School, 333 West 50th Street, New York City
New York University College of Medicine	April 20	Full time, 3 weeks: inhalation anesthesia	5	\$150	Dr. Currier McEwen, Dean, New York University College of Medicine, 477 First Avenue, New York City
University of Georgia School of Medicine	Arranged on application	Several neeks; training for government service	Limited	None	Dean, University of Georgia School of Medleine, University Place, Augusta, Georgia
BACTERIOLOGY—See also Gastroenterolo Columbia University, including the New York Post-Graduate Medical	gy; Medicine May	Full time, I month; practical technic of medical bacteriology	2 :	\$100	The Director, Columbia University School of Medicine, 200 East John Street, New York City
School Harvard School of Public Health	May	MWF afternoons, 1 month; applied immunology	Limited 2	£€1.2 ₽	Dr. C. K. Drinker, Dean, Harvard School of Public Health, 53 Shattuck Street, Boston, Massachusetts
	Arranged on application	Arranged; immunology and the technic of serum study	Limited 2	\$155 P	•
	Arranged on	Arranged; research in communicable diseases	Limited 2	دائ2 ه	
New York Polyelinic Medical School	application let of any month between Oct. 1 and June 39	Arranged	Limited 2	Arranged	Dr. F. H. Dillingham, Executive Offer, New York Polyclinic Medical School, 225 West Joth Street, New York City
BIOLOGICAL CHEMISTRY Harvard Medical School, Courses for Graduates	Arranged on application	Arranged; re∞arch			Dr. Frank R. Oler, Asst. Dean, Harvard Medical School, 25 Shattuck Street,
Harvard School of Public Health	Arranged on application	Arranged; nutrition	Limiteà =	\$25 °	Dr. C. K. Drinker, Dean, Harvard School of Public Health, 55 Shattuck Street, Boston, Massachusetts
BRONCHO-ESOPHAGOSCOPY—See also S Columbia University, including the New York Post-Graduate Medical School	urgery Arranged on application, OctApr.	3 weeks; instruments and technic of bronchoscopy	Limited 4	\$250 .	The Director, Columbia University School of Medicine, 399 East 20th Street, New York City

Continuation Courses for Practicing Physicians, April 20-July 20, 1942-Continued

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	
RONCHO-ESOPHAGOSCOPY—See also Harvard Medical School, Courses for Graduates	Surgery—Continued Arranged on application	2 weeks	Limited 4	\$150	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
New York Eye and Ear Infirmary, School of Ophthalmology and Otology	Arranged on application	2 or 6 neeks; broncho- esophagology	, 4 a	\$250 ²⁹	Mabel R. Stewart, Registrar, School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 218 Second Ave., New York City
ANCER Tufts Medical School, Post-Graduate Division	Arranged on application	Arranged	Minimum:4	Arranged	Dr. Samuel Proger, Chairman, Post- Graduate Division, Tufts Medical School, 30 Bennet Street, Boston, Massachusetts
ARDIOLOGY—See also internal Medicing Columbia University, including the New York Post-Graduate Medical	June 15	Full time, 3 weeks; eardiovascular diseases	4-15 °2	\$73 ^s	The Director, Columbia University School of Medicine, 309 East 20th Street. New York City
School Harvard Medical School, Courses for Graduates	July 1	Full time, 1 month; modern diagnosis and treatment of heart	20	\$120	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	disease to biweekly sessions; clinical cardiology and electrocardiography	•••••	<b>\$100</b>	Dr. J. A. W. Hetrick, Acting Dean, New York Medical College, Flower and 5th Avenue Hospitals, Fifth Ave. at 105th St., New York City
Tufts Medical School, Post-Graduate Division	May 11	Full time, 1 week	······ ′	\$25 a	Dr. Samuel Proger, Chairman, Tutts Medical School Post-Graduate Division, 30 Bennet Street, Boston, Mass.
University of Michigan, Department of Post-Graduate Medicine	May 14	Full time, 3 days; diseases of the heart	*****	\$10 925	Dr. James D. Bruce, Chairman, Depart- ment of Post-Graduate Medicine, Uni- versity of Michigan, 1313 East Ann St., Ann Arbor, Mich.
YSTOSCOPY—See Gynecology, Surgery,	Urology				•
DERMATOLOGY AND SYPHILOLOGY Columbia University, including the New York Post Graduate Medical School	Enter when vacancy occurs	3 mornings a week for 6 weeks or 3 months; diagnosis and treat-	6 per section	925 <b>940</b> s	The Director, Columbia University School of Medicine, 309 East 20th Street, New York City
	Enter when vacancy occurs	ment of syphilis 3 mornings or after- noons a week, 6 weeks or 3 months; clinical	20 per section	\$40 \$75 1n.s	
	Enter when vacancy occurs	3 afternoons a week for 6 weeks or 3 months; practical instruction in dermatologic allergy and immunology	3 per section	940 975 ⁸	
	Enter when vacancy occurs	3 afternoons a week for 6 weeks or 3 months; practical instruction in diagnosis and manage- ment of syphilis	3 per section	840 873 B	
	Arranged on application	3 mornings or after- noons a week, for 6 weeks or 3 months; practical instruction in minor dermato- logic surgery	2 per sec- tion 4	610 612 8	
	Arranged on application	3 mornings or after- noons a week for 6 weeks or 3 months; practical instruction in mycology and animal parasitology as related	3 per sec- tion *	\$40 \$75 ⁶	
	Enter when vacancy occurs	to diseases of the skin 3 afternoons a neck for 6 weeks or 3 months; practical instruction in	3 per ection	₹40 <b>₹</b> 75 ⁸	
	Mny 4	physical therapy Full time, 6 days; seminar in practical dermatology and	Minimum:1	2 935 <b>s</b>	
Harvard Medical School, Courses for Graduates	Every 2 mos.	syphilology 2 mornings a week, 2 months; elinical mycology	G	\$50	Dr. Frank R. Ober, Aest. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Maccachusetts
	Arranged on application	Full time or mornings: general dermatology; afternoons: skin ward	Limited 2	Arranged	בייטוניים אויטיים אייטיים
	July	work (elective)	*****	\$40	
	Monthly	I month; dermatology Mornings, I month;	*****	\$40	
	May	dermatology  MW mornings, I month; occupational dermatoses	*****	\$40	
Harvard School of Public Health	Arranged on application	5 uiternoons a week, Saturday mornings; clinical instruction	Limited 2	95, 0	Dr. C. K. Drinker, Dean, Harvard School of Public Health, 55 Shattuck Street, Boston, Massachusetts
	Arranged on	in syphilis Short course; methods	Limited 2	\$65 P	
Tufts Medical School, Post-Graduate Division	application May 18	of serological diagnosis 1 week; dermatology	Minimum:6	•	Dr. Samuel Proger, Chairman, Post- Graduate Division, Tufts Medical School, 20 Bennet Street, Boston, Massachusetts

Continuation Courses for Practicing Physicians, April 20-July 20, 1942—Continued

Institution DIETETICS—See also Biolog'cal Chemistry	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information
Tuits Medical School, Post-Graduate Division	Arranged on application	Arranged	4	Arranged	Dr. Samuel Proger, Chairman, Post- Graduate Division, Tufts Medical School, 30 Bennet Street, Boston, Massachusetts
ELECTROCARDIOGRAPHY—See also Card Columbia University, including the New York Post Graduate Medical School	lology May 18 May 5	Full time, 5 days TT mornings, 4 weeks;	Minimum 4 2 Minimum:3 2		The Director, Columbia University School of Medicine, 309 East 20th
Tufts Medical School, Post Graduate Division	May 11	advanced course 5 days	Limited ²	\$25 ³	Street, New York City Dr. Samuel Proger, Chairman, Post- Graduate Division, Tutts Medical School, 30 Bennet Street, Boston,
University of Pennsylvania, Graduate School of Medicine	Arranged on application	5 days, about 30 hours	Indi- ylduals *	\$60	Massachusetts Dr. R. C. Buerki, Dean, Graduate Scho of Medicine, The Medico Chirurgical College, 237 Medical Laboratorica, Philadelphia, Pennsylvania
ENDOCRINOLOGY—See also Gynecology, Harvard Medical School, Courses for Graduates	Medicine Any time	Daily; diabetes	Physi- cians velcome	None	Dr. Frank R Ober, Asst. Dean, Harra Medical School, 25 Shattuck Street, Boston, Massachusetts
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	9 biweekly sessions; endocrine and meta- bolic disturbances, including diabetes	• •	\$100	Dr. H. A. W. Hetrick, Acting Dean, M. York Medical College, Flower & Fifth Ave. Hospitals, 5th Ave. at 185th St., New York City
Tuits Medical School, Post Graduate Division	May 25	mellitus 1 week		\$25 ³	Dr Samuel Proger, Chairman, Post- Graduate Division, Tutts Medical School, 30 Bennet Street, Boston, Massachusetts
University of Pennsylvania, Grad- uate School of Medicine  ENDOSCOPY—See Gynecology; Surgery	Arranged on application	24 weeks, about 75 hours; diabetes mellitus	Indi viduals *	\$150	Dr. R. C. Buerl, Dean, Graduate Schoo of Medicine, The Medico Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
EPIOEMIOLOGY Harvard School of Public Health	Arranged on application	Arranged; special problems	Limited 2	\$65 P	Dr. C. K Drinker, Dean, Harvard School Public Health, 55 Shattuck Street,
FORENSIC MEDICINE New York University College of Medicine	Arranged on application	Part time (at least 18 hours weekly); courses in necropsy, to/icology, forensic medleine	Limited ²	\$25 <b>\$10</b> 0	Boston, Massachusetts Dr. John H. Mulholland, Asst. Dean, New York University College of Med cine, 477 First Avenue, New York Cit
GASTROENTEROLOGY—See also Anatom; Columbia University, including the New York Post Graduate Medical School	, internal Medi May 6	cine, Surgery 3 hours a week for 12 weeks, gastroscopy	14	\$75 ⁸	The Director, Columbia University School of Medicine, 200 East 20th Street, he York City
5(1100)	Arranged on application	3 afternoons a week for 2 months; gastroscopy	2 4	\$200	•
Hahnemann Medical College of Phil adelphia	Arranged on application	Arranged; gastroscopy, duodenal biliary drainage, microscopy of bile, bacteriological technic	•		Dr. William A Pearson, Dean. Hahne- mann Medical College, 235 North 15th Street, Philadelphia, Pennsylvania
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	5 sessions; peritoneoscopy	•	\$50 12	Dr. J. A. W. Hetrick, Acting Denn, Me York Medical College, Flower & 5th Avenue Hospitals, 5th Ave at 10sth Street, New York City
	Arranged on application	10 morning sessions; gastroscopy	•	\$100 12	
University of Chicago, The School of Medicine	June 22	3 months; gastroscopy	3	\$150 \$100	Dr. Victor Johnson, Dean, University of Chicago, The School of Medicine, Chicago, Illinois
GASTROENTEROLOGY-See also Anatomy	July 27 , Internal Medic	2 weeks; gastroscopy line, Surgery—Continued	ð	•	Dr James D. Bruce, Chairman, Depar
University of Michigan, Department of Post Graduate Medicine	May 11	3 days			versity of Michigan, 1913 East And
University of Pennsylvania, Grad- uate School of Medicine	Arranged on application	16 weeks, about 500 hours; choical	Indi ridual *	\$100	Dr. R. C. Buerki, Dean, Graduate Schoo of Medicine, The Medico Chirurgical College, 237 Medical Luboratories, Philadelphia, Pennsylvania
GASTROSCOPY—See Gastroenterology		Summer: 15-1 V	> Diaman C	******	
GYNECOLOGY—See also Medicine, Obster Columbia University, including the New York Post Graduate Medical	day of and month when a	MWF mornings or afternoons; cystoscopy	eas pisease C	\$75 8	The Director, Columbia University School of Medicine, 200 Fast 20th Street, New York City
School	vacancy occurs Monthly	and endoscopy 10 sessions, 3 morn ings or afternoons a week; diagnosis and	6	\$10 8	
	Monthly	office treatment 15 sessions, MWF afternoons; diagnosis and office treatment	ø	\$20 a	
	Enter 1st Mon- day of and month when a	24 sessions; TT5 mornings; gyneco logical endocrinology	4 =	\$100 ⁸	
	Arranged on application	4 or more hours weekly for 4 weeks or longer; gyneco	••	Arranged 5	
	Arranged on application	logical pathology 12 sessions, TTS mornings, for 4 weeks; surgical anatomy as applied to operative gynecology (cadaver)	2-3 4	\$200 ^{\$}	

Continuation Courses for Practicing Physicians, April 20-July 20, 1942-Continued

Institution	Courses Begin	· Length and Content of Course	Students Accepted	Registration Fee and/or Tultion	For Detailed Information Write to
SYNECOLOGY—See also Medicine, Obstetri Harvard Medical School, Courses for Graduates	cs, Pathology, June, July	Surgery, Urology, Venere Mornings for 1 month	al Disease 4 per month 1	Control—Con \$75	linued Dr. Frank R. Ober, Asst. Dean, Harvar Medical School, 25 Shattuck Street, Boston, Massachusetts
•	Monthly	10 sessions, 2 morn- ings and evenings a week; gonorrhea in women	3	\$20	•
IEMATOLOGY—See also Surgery New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	16 biweekly sessions; physical diagnosis and hematology, especially in diseases of the thoracic organs	******	<b>\$100</b>	Dr. J. A. W. Hetrick, Acting Dean, Ne York Medical College, Flower & 5th Avenue Hospitals, 5th Ave. at 105th St., New York City
Tufts Medical School, Post-Graduate Division	July 6	2 weeks	•••••	\$75 °	Dr. Samuel Proger, Chairman, Post- Graduate Division, Tufts Medical School, 30 Bennet Street, Boston, Massachusetts
University of Michigan, Department of Post-Graduate Medicine	May 18	5 days; diseases of blood and blood- forming organs	,,,,,,	\$10-\$25	Dr. James D. Bruce, Chairman, Dept. ( Post-Graduate Medicine, University ( Michigan, 1313 East Ann Street, Ann Arbor, Michigan
NFANTILE PARALYSIS University of Minnesota, The Medical School	Arranged on application	Arranged; Kenny method of treatment	•••••	Arranged	Dr. William A. O'Brien, Director, Depar ment of Post-Graduate Education, Ti Medical School, University of Minne- sota, Minneapolis, Minnesota
NTERNAL MEDICINE Columbia University, including the New York Post-Graduate Medical School	May 4 13	Full time, 4 weeks	10	\$100	Secretary for Medical Instruction, The Mount Sinai Hospital, Fifth Ave. at 100th St., New York City
Harvard Medical School, Courses for Graduates	May	Full time, 1 to 4 months 14	•••••	\$150 per month	Dr. Frank R. Ober, Asst. Dean, Harvar Medical School, 25 Shattuck Street, Boston, Massachusetts
Meharry Medical College	June 1	4 sessions, 2 weeks; gastrointestinal dis- eases from nutritional deficiency and cardio- yascular diseases	Limited 15	\$20	Dr. Edward L. Turner, President, Me- harry Medical College, Nashville, Tennessee
New York University College of Medicine	Monthly, OctMay	5 mornings a week for 1 month; practical review	Limited	\$50	Dr. Charles H. Nammach, Director, Fourth Medical Division, Belleview Hospital, 20th Street and East Rive New York City
Tufts Medical School, Post-Graduate Division	May 4	4 weeks	•••••	\$50 ³	Dr. Samuel Proger, Chairman, Post- Graduate Division, Tufts Medical School, 30 Bennet Street, Boston, Massachusetts
University of Michigan, Department of Post-Graduate Medicine	June 29	4 weeks	•••••	\$10-\$25	Dr. James D. Bruce, Chairman, Department of Post-Graduate Medicine, Unversity of Michigan, 1313 East Ann Street, Ann Arbor, Michigan
MEDICINE Columbia University, including the New York Post-Graduate Medical School	May 25	Full time, 5 days; clinical interpretations of laboratory data	Minimum:4	\$35 ⁸	The Director, Columbia University School of Medicine, 309 East 20th Street, New York City
	June 1	Full time, 5 days; diseases of the liver and biliary tract	Minimum:4	\$35 8	
	May 4	Full time, 4 weeks; intensive course	Minimum:1	0 \$100	
	May 11	Full time, 5 days; metabolism, including endocrinology and nutrition	Minimum:4	\$35 8	
	June 15	Full time, 10 days; symposium on medicine	Minimum:1	0 \$50 s	
New York Polyclinic Medical School	Arranged on application	Full time, 6 weeks; fundamentals of medi- cine and surgery for general practitioners	*****	\$100	Dr. F. H. Dillingham, Executive Office New York Polyclinic Medical School, 335 West 50th Street, New York City
Pacific Northwest Medical Associa- tion, Meeting at Portland, Ore.	June 17	4 days; physiology, bacteriology, roent- genology, medicines, surgery, urology, military medicine	Limited 16	\$12 17	Dr. Clyde W. Countryman, Secretary- Treasurer, Pacific Northwest Medical Association, 407 Riverside Avenue, Spokane, Washington
Tenth Annual Graduate Short Course for Doctors of Medicine	June 22	6 days; medicine, pediatrics, gynecology, surgery, venereal diseases, obstetrics	Limited 15	<b>१</b> ऽ	Dr. T. Z. Cason, Chairman, Medical Post-Graduate Drive Committee, Florida Medical Association, 2033 Biomedia Avance Legistralia Florida
University of Georgia, School of Medicine	June 15	10 days	Limited 15	None	Riverside Avenue, Jacksonville, Florid The Dean, University of Georgia Schoo of Medicine, University Place, Atlanta Georgia
University of Wisconsin Medical School	April 20	5 days; elect 1 or 2; medicine, pediatrics, surgery, obstetrics and gynecology	20 18	<b>\$7.50</b>	Dr. Wm. S. Middleton, Dean, Universit of Wisconsin Medical School, 418 Nort Randall Avenue, Madison, Wisconsin
MILITARY MEDICINE—See also Medicine State of New York Department of Health, Local Health Adminis- tration NEUROLOGY—See Psychiatry and Neurol	May	Full time, 2 days; medical aspects of gas warfare	Limited 19	None	Dr. H. van Zile Hyde, Regional Medical Officer, Second Civilian Defense Region Office of Civilian Defense, 111 Eighth Avenue, New York City

Continuation Courses for Practicing Physicians, April 20-July 20, 1942-Continued

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registrati Fee and/ Tuition	or For Detailed Information
OBSTETRICS—See also Medicine, Patholo The Chicago Materialy Center	gy, Pediatrics, May	Public Health 4 months		\$10	Dr. Beatrice E. Tucker, Medical Director The Chicago Materalty Center 12.
Columbia University, including the New York Post Graduate Medical School	1st of any month from Jan -Oct	Full time for 3 mos; internsing training	••••	\$350	South Newberry Avenue, Chicago, 19 The Director, Columbia University School of Medicine, 309 Fast 20th Street, New York City
	1st of any month	1 month; observa- tion course		\$100	and the second one
Duke Medical School and Hospital	Arranged on application through July 1st or later	5 days; obstetries and pediatries	4 6 -0	None 21	Dr. G. M. Cooper, North Carolina State Board of Health, Raleigh, North Carolina
Harvard Medical School, Courses for Graduates	Monthly	1 month or more; clinical	81	\$125	Dr Frank R Ober, Asst Dean, Harvari Medical School, 25 Shattuck Street, Boston, Massachusetts
Indian University School of Medicine	Arranged on application	Arranged	10	\$10	Dr. C. J. Clark, Chalrman, Indiana University School of Medicine, In dianapolis, Indiana
	July 13	Full time, 2 weeks; obstetries and gynecology	G ²	\$10 -1 -2	
Louisiana University Medical Center	June 1	2 weeks; intensive refresher course	Limited =3	None 21	
North Dakota State Department of Health (at Center for Continua- tion Study, U of Minnesota)	May 11	6 days	4 = 4	None 21	Dr. William A. O'Brien, Director, Center for Continuation Study, U. of Minne sota, Minneapolis, Minn.
North Dakota State Department of Health (at University Hospital, U of Iona, Iona City)	Weekly, April June	1 week; obstetries and gynecology	I united =	None 21	Dr. Frank J. Hill, Acting State Health Officer, North Dakota State Depart ment of Health, Bismarck, North Dakota
University of Chicago, School of Medicine	May 11	4 weeks	7	\$25 -2	Postgraduate Course, Department of Obstetries and Gynecology, University of Chicago School of Medicine, 5818 Drevel Avenue, Chicago, Illinois
University of Minnesota, The Medical School	May 12	4 days	60	\$25	Dr. William A. O'Brien, Director, Depart ment of Post Graduate Fducation, The Medical School, University of Minne- sota, Minneapolis, Minnesota
University of Mcbraska, College of Medicine	Arranged on application	1 ull time, 2 weeks; obstetries, gyne cology, pediatries	2	\$10 -2	Dr. C. W. M. Poynter, Dean, 42 Street & Dewey Avenue, Omaha, Nebraska
OPHTHALMOLOGY—See also Anatomy, R Columbia University, including the New York Post Graduate Medical School	adiology, Surge Arranged on application		Minimum 1	633 R	The Director, Columbia University School of Medicine, 309 East 20th Street, New York City
New York Tye and har Infirmary, School of Ophthalmology and Otology	1st of any month	Part time for 1 to 1 months	482	\$10 c100 -p	Mabel R Stewart, Registrar, School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 215 Second Avenue, New York City
Infts Medical School, Post Graduate Division	Monthly	MWT mornings	I imited	\$20 z	Dr. Samuel Proger, Chairman, Post Graduate Division, Tufts Medical School, 30 Bennet Street, Boston, Massachusetts
University of Hilmors, College of Medicine	Arranged on application	Mornings for 4 mos	10	\$7 <b>3</b>	Mr George Moon, Aest, to the Dean, University of Illinois College of Medi eme, 1853 West Polk Street, Chicaso, Illinois
University of Michigan, Department of Postgraduate Medicine	April 23	1 week; ophthal mology and otolary n gology		\$10 \$25	Dr. James D. Bruce, Chairman, Depart ment of Postgraduate Medicine, tol versity of Michigan, 1313 East Ann Street, Ann Arbor, Mich.
University of Pennsylvama, Graduate School of Mediume	Arranged on application	S weeks, about 120 hours; ocular refraction	Indi viduals 4	\$270	Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico Chirurgical College, 237 Medical Laboratories, Philadelphia, Penneylvania
	Arranged on application	8 weeks, about 96 hours; ophthalmic histology and pathology	Indi viduals 4	<b>\$</b> 200	
OTOLARYNGOLOGY—See also Broncho-E: Columbia University, including the New York Post Graduate Medical School	occurs occurs	procedures	section	\$50(2 <cc) for 5 weeks 8</cc) 	The Director, Columbia University School of Medicine, 200 Fast 29th Street, New York City
	Arranged on application, Sept June	Arranged; dissection of the head and neck		Arranged 8	
	Arranged on application	15 sees long, 2½ hrs each; or longer sees sions arranged in units of 12 sessions; embryology, histology	Minimum 1 4	\$75 <b>*</b>	
	_	and pathology of the ear, nose and throat	0.04	Lungmar.ld	
	Arranged on application, Sept July	Arranged; surgical anatomy as applied to otology (cadaver)	26*	Arranged *	

Continuation Courses for Practicing Physicians, April 20-July 20, 1912-Continued

Institution	Cour-es Begin	Length and Content of Course	Students Accepted	Registration I ee and/or Tuition	For Detailed Information Write to
OTOLARYNGOLOGY—See also Broncho-E	sophagoscopy. Of Arranged on application, Sept June	ohthalmology, Radiology, Arranged, surgical anatomy as applied to rhinology and laryngology (cadaver)	Surgery—Co	entinued Arranged ⁸	
Harvard Medical School, Courses for Graduates	Monthly, except April or August	Full time, clinical otology	2 -	\$50	Dr. Trank R Ober, Asst Dean, Harvard Medical School, 25 Shuttuck Street, Boston, Massachusetts
	Arranged on application, except in April May 4	Tull time for 2 wks; physiology of the cochien and vestibu lar apparatus fidnys a week for 2 weeks, histopith	2	\$100°2	
	Arranged on application	ology of the nose and throat Arranged, technic of submucous resection	Limited	75 per 5 9787979	
New York Eye and Ear Infirmary, School of Ophthalmology and Otology	1st of any month	of the nasal septum Part time for 1 to 3 months, otology	<b>1</b> 2		Mubel R Stewart, Registrar, School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 218
Tuits Medical School, Post Gradu	Monthly	Every morning or MWF mornings for		0 for MWF 3	Second Avenue, New York City Dr Samuel Proger, Chairman, Post Graduate Division, Jufts Medical School, 30 Bennet St., Boston, Mass
University of Cincinnati College of Medicine	M13 11	1 month  Full time for 6 days, operative course (endaver) ofology, rlunology and laryn gology	574	\$73 s <b>c</b>	Dr Stanley E Dorst, Dean, University of Cincinnati College of Medicine, Eden and Bethesda Avenues, Cincin- nati, Obio
PATHOLOGY—See also Gynecology, Opht Columbia University, including the New York Post Graduate Medical School	halmology, Otola April 21		d Neurology Minimum 4	\$45	The Director, Columbia University School of Medicine, "09 Fist 20th Street, New York Olty
Harvard Medical School, Courses for Graduates	Arranged on application	Arranged, research		Arranged \$	Dr Frank R Oher, Asst Dean, Hurvard Medical School, 25 Shattuck Street, Boston, Massachusetts
	July 1	I month, general and surgical	б	\$60 5	Boston, Brassaciansens
	Monthly, except August	Tull time, pathology of obstetrics and gynecology	2 4	\$125 5	
	Monthly	Arranged special staining methods, sutopsies	4	\$40	
New York Polyelinic Medical School	1st of any month between Oct 1 and June .0	Arranged	I imited 2	Arranged	Dr T. II Dillingham, Precutive Officer New York Polyclinic Medical School, 335 West 50th Street, New York City
University of Michikan, Department of Post Graduate Vedicine	July 1°	2 weeks, pathology of femile genito urmary organs		\$10 \$25	Dr James D Bruce, Chairman, Depart ment of Post Graduate Medicine, Uni versity of Michigan, 1977 Fast Ann Start Ann Arbor Michigan
•	June 29	2 weeks, special pathol ogy of neoplasms		\$10 \$25	Street, Ann Arbor, Michigan
PEDIATRICS—See also Medicine, Obst Columbia University, including the New York Post Graduate Medical	etrics, Public } July	lealth 1 month-clinical lectures and demon	28	\$40 g	The Director, Columbia University School of Medicine Of East 20th
School	May, Tune	strations 1 month or longer	2 5	\$100 s	Street, New York City
	July	clinical, practical work Full time, 1 month, seminai	3 12	\$125 B	
Harrard Medical School, Courses for Graduates	July 1 26	Full time or mornings, 1 month, review	I united	Mornings \$5,3 full time \$125.3	Dr Irank R Ober, Asst Dean, Harvard Medical School 23 Shattack Street, Boston, Massachusetts
Meharry Medical College	June 15	Full time for 2 wks	I imited 15	\$20	Dr Edward L Turner, President, Me harry Medical College, Nashville, Tennessee
University of Minnesota, The Medi Medical School	June 8	" days health problems of preschool children	50 20	\$15	Dr William A O Brien, Director, Depart ment of Post Graduate Education, The Medical School, University of Minne
PERITONEOSCOPY—See Gastroenterology PHYSICAL THERAPY					sota, Minneapolis, Minnesota
New York Polychmic Medical School	1st of any month between Oct 1 and June (	Arranged	I mited z	Arranged	Dr F II Dillingham, l'recutive Officer Aen Lork l'obsellale Medical School, 
PHYSIOLOGY—See also Medicine, Psych Harvard Medical School, Courses for Graduates	latry and Neuro Arranged on application	logy Arranged research		Arranged = =	Dr Irank R Ober, Asst Dean, Harvard Medical School, 25 Shattink Street.
PROCTOLOGY—See also Surgery Tufts Medical School, Post Graduate Division	April 27	I neek proctology I		\$2,2	Boston, Massachusetts  Dr Samuel Proger, Chairman Post Graduate Division, Tutts Medical
	lar 1	2 or 4 weeks proctol og 11 (prerequisit	2	2 weeks \$ 10 4 neeks \$100	School, O Bennit Strict, Boston, Massachusetts
PSYCHIATRY AND NEUROLOGY Columbia University, including the New York Post Graduate Medical School	Monthly, Oct May	proctology I) Safternoons a week for I month or longer,	1 G	\$ 43 g	The Director, Columbia University School of Medicine 300 I not 20th
	Arranged on application, Oct. Tune	elinical neurologs  MW mornings.  Friday, for 4 weeks; neuroanatomy	Vinimum ?	<b>e</b> 5 4	Street, Sen Fork City

Continuation Courses for Practicing Physicians, April 20-July 20, 1942-Continued

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	
PSYCHIATRY AND NEUROLOGY—Cont Harvard Medical School, Courses for Graduates	inued May, June	5 mornings a week for 1 month	Minimum:4	<b>\$</b> 50	Dr. Frank R. Ober, Asst Dean, Harrard Medical School, 25 Shattuck Street, Boston, Massachusetts
	July 6	5 mornings a week for 4 weeks; diag- nosis and treatment of language problems		\$50 <b>a</b>	•
	Arranged on application	Arranged; general psychiatry or special fields	Indi viduals	Arranged	
	Arranged on application	Arranged, neuro anatomy, neurophysi- ology, neuropathology, chinical neurology, neurosurgery	*** **	Arranged	
	Arranged on application	Arranged; research in neuropathology; research in cerebrospinal fluid is elective	Indi viduals	Arranged ¹	i
University of Pennsylvania, Grad- unite School of Medicine	Arranged on application	240 hours, 8 weeks; clinical psychiatry	Indi viduals *	\$160	Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico Chirurgical College, 237 Medical Lab
	Arranged on application	10 weeks, about 250 hours; clinicobiologic neurology and psychiatry	Indi- viduals 11	\$100	oratorics, Philadelphia, Pennsylvania
PUBLIC HEALTH—See also Dermatology Harvard School of Public Health	and Syphifology; Arranged on application	Pediatrics; Venereal Di Arranged; research in public health practice	sease Control Limited ²	\$65 ₽	Dr. C. K. Drinker, Dean, Harvard School of Public Health, 55 Shattuck Street, Boston, Massachusetts
Postgraduate Institute on Public Health	May 18	2 days; tuberculosis, syphilis, pediatrics, obstetrics	Limited 20	None	Dr. W. Roderick Brown, Chairman, Post Graduate Institute on Public Health, 2446 Wylle Avenuc, Pittsburgh, Pa
RADIOLOGY—See also Medicine Harvard Medical School, Courses for Graduates	Monthly	Arranged; 3 days a week	3	<b>\$</b> 35	Dr. Frank R. Ober, Asst Dean, Harrard Medical School, 25 Shattuck Street, Boston, Massachusetts
,	Monthly	Full time; diagnostic and therapeutic roentgenology	2 2	\$100	2000001 2010000
	Monthly	Full time; general roentgenology	3 1	\$100	
	Monthly	Full time; use of x ray in surgical diagnosis and therapy	Limited 2	\$30	d
New York Eye and Ear Infirmary, School of Ophthalmology and Otology	Ist of any Month	3 mornings a week for 6 weeks; roentgenology for ophthalmologists	2 2	\$10 zo	Mabel R. Stewart, Registrar, School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 218 Second Avenue, New York City
	1st of any month between Oct 1 and June 30	Arranged; roent- genology	Limited 2	Arranged	Dr F. H. Dillingham, Executive Offict, New York Polyclinic Medical School, 335 West 50th Street, New York City
RHINOLOGY—See Otolaryngology RHINOLARYNGOLOGY—See Surgery SURGERY—See also Special Headings				207.5	The Director, Columbia University
Columbia University, including the New York Post Graduate Medical School	Arranged on application	Part time, 8 sessions, at least 12 hours; blood transfusion; blood and plasma bank	18	\$35 B	School of Medicine, 309 Enst 20th Street, New York City
	Arranged on application, Sept June	12 sessions or more, dissection and surgical anatomy	Minimum 24	\$125 per 12 sessions ⁸	
	July 2	MWF afternoons for 1, 2 or 3 months, proctology	244	\$150 for 3 months 8	
	April 20 Arranged op	1 week, seminar in 5 sessions, surgical	5 30 4	\$60 s	
	application, except in	traumatic surgery anatomy as applied to colon and rectal	2 4	\$75 B	
	July or August Any month but July and August when ciass of 2 is formed	surgery (endaver) 4 afternoons a week, 12 sersions; surgical anatomy as applied to general surger;	Limited 4	\$200 s	
•	Arranged on application, except July and August	12 sessions; surgical anatomy as applied to thoracic surgery (cadaver)	264	\$125 B	
	(a) May 5-28 (b) June 22 27	(a) Part time, 3 weeks, (b) Full time, 6 days, traumatic surgery	••••	ę35 B	
Harvard Medical School, Courses for Graduates	June 1	6 mornings a week for 1 month; clinical instruction in nonortho- pactic children's sur- gical diseases	8	0.3	Dr. Frank R. Ober, Asst. Dean, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts
	May, June, July	Full time; endoscopy	2	Arranged	
	May, June	Mornings, genito urinary surgery; major and minor operations, use of cystoscope	41	\$75	

## Continuation Courses for Practicing Physicians, April 20-July 20, 1942—Continued

Institution	Courses Begin	Length and Content of Course	Number of Students Accepted	Registration Fee and/or Tuition	For Detailed Information Write to
URGERY—See also Special Headings—Col		Mornings; genito-	Limited	\$50	
	May 4	urinary surgery 12 days; principles of plastic operations,	Limited	\$150	
	June 22	surgery on cadaver 2 weeks; surgical technic	Limited	<b>\$</b> 225	
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	60 hours; surgical technic (dog)		·	Dr. J. A. W. Hetrick, Acting Dean, New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City
New York Polyclinic Medical School	May	4 weeks; plastic reparative surgery	Limited 2	\$350	Dr F. H. Dillingham, Executive Officer New York Polyclinic Medical School 335 West 50th Street, New York City
Tufts Medical School, Post Grad- uate Division	Ma3 4	12 days; applied surgical anatomy on cadaver in the even ings, elective	Limited	\$150 °S \$175 with evening work	Dr. Samuel Proger, Chairman, Post Graduate Division, Tufts Medical
University of Pennsylvania, Graduate School of Medicine	June 15	2 weeks, about 85 hours; bronchoesophagology, gastroscopy and laryngeal surgery	Indi- viduals 4	\$250	Dr. R. C. Buerki, Dean, Graduate Schoo of Medicine, The Medico Chrurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania
	Arranged on application	3 weeks, about 27 hours; ophthalmic operations (cadaver)	Indi viduals 4	. \$270	
	Arranged on application	2 weeks, about 20 hours; otologic operations (cadaver)	Indi- viduals 4	\$250	
	Arranged on application	10 days, about 20 hours; rhinolaryngologic operations (cadaver)	Indi Viduals 4	\$150	
YPHILOLOGY—See Dermatology and S	yphilology, Vener	eal Disease Control, Gyn	ecology		
ROPICAL MEDICINE Columbia University, including the New York Post Graduate Medical	May 25	Full time for 5 days	Minimum'4	\$50 ⁸	The Director, Columbia University School of Medieme, 303 East 20th New York City
School Harvard School of Public Health	Arranged on application	Arranged; medical zoology and tropical medicine 26	Limited 2	\$65 €	Dr. C. K. Drinker, Dean, Harvard Schoo of Public Health, 55 Shattuck Street, Boston, Massachusetts
TUBERCULOSIS—See also Public Health Columbia University, including the New York Post-Graduate Medical School	May 4	Full time for 2 wks; pulmonary tuberculosis	4 20	\$20 ₽	The Director, Columbia University School of Medicine, 309 East 20th Street, New York City
Mississippi State Sanatorium	Arranged on application throughout the year	2 weeks or more; clinical medicine and chest diseases	• •	None 27	Dr. Henry Boswell, Superintendent, Mississippi State Sanatorium, Sana- torium, Mississippi
New York Medical College, Flower and Fifth Avenue Hospitals	Arranged on application	1 month; diagnosis and treatment	•	\$100	Dr J. A. W. Hetrick, Acting Dean, Nev York Medical Gollege, Flower and Fifth Avenue Hospitals, 5th Avenue at 105th Street, New York City
UROLOGY—See also Anatomy, Medicine, Columbia University, including the New York Post Graduate Medical School	Pathology, Surg Arranged on application	ery Short courses	Indi viduals 4	Arranged ⁸	The Director, Columbia University School of Medicine, 309 East 20th Street, New York City
Harvard Medical School, Courses for Graduates	Monthly, October through May	I month; diagnosis management of gono coccus infections, problems of female urology emphasized		\$75 per month	Dr Frank R. Ober, Asst Dean, Harvar Medical School, 25 Shattuck Street, Boston, Massachusetts
Joint Committee on Post Graduate Education	1st of every month	1 month or longer; practical	3	\$25 per month	Registrar, Joint Committee on Post- Graduate Education, 1313 Bedford Ayenue, Brooklyn, New York
University of Pennsylvania Graduate School of Medicine	Arranged on application	6 weeks, about 36 hours; cystoscopy, chromo ureteroscopy and	Indi viduals *	\$300	Dr. R C. Buerki, Dean, Graduate School of Medicine, The Medico Chirurgical College, 237 Medical Laboratorics.
VENEREAL DISEASE CONTROL-See a	also Gynecology.	pyelography Dermatology & Syphilolo	ogy, Medici	ine, Public I	Philadelphia, Pennsylvania lealth
Mobile City Hospital	Monthly, usually 3d week	1 week	Limited 20		
Howard University, College of Medicine	July 1	Full time for 1 quarter	Limited 2 1	s \$15 28	Dr. John W. Lawlah, Dean, Howard University College of Medicine, Wast
University of Pennsylvania, Insti- tute for the Control of Syphilis	On demand	(a) 12 weeks, 35 bours per week	(a) 12	(n) \$25	ington, D. C. Dr. John H. Stokes, Director, Institute for the Control of Syphilis, Hospital
	Arranged on application	(b) Full time for 1 month	(h) Indi- viduals	(p) <i>\$</i> ৩	of the University of Pennsylvania, 3400 Spruce Street, Philadelphia, Pa

^{1.} Male physicians only.
2. Physicians with adequate preliminary training and/or approved by the post graduate department are eligible.
3. Registration fee of \$5 covers all courses taken within 12 months
4. Limited to specialists who have had preliminary training and experience.

⁴ Limited to specialists who have had preliminary training and experience.

5 A laboratory fee of about \$5 will be added

6. It 2 or more students register for the course at the same time, a reduction in the fee will be made.

7. Special parts may be taken.

8 Upon application by physicians otherwise unable to meet the expense of post graduate study, grants to defray part of the tuition are made from a scholarship fund.

9. A bond of \$500 is required.

10. If two or more sections are taken, the fee will be reduced of mental institutions

11. Register two to six weeks in advance.

12. May not be offered

13. Negro physicians in good standing are eligible.

¹⁶ For physicians from Washington, Oregon, Montana, Utah, Province of British Columbia.
17. Members of the several Medical Corps will be admitted free of charge.

¹⁸ Applications will be accepted in the order of their receipt.
10 A course for Emergency Medical Service officers and selected physicians

physicians
20 For state physicians Some out of state physicians accepted
21 State boards of health furnish funds covering tuition fees, main
tenance, or transportation for physicians of the state
22. All or part refunded on satisfactory completion of the course.
23 White registered physicians, practicing in the state
24 Physicians recommended by the District Medical Societies who have
not received a stipend for a course in the same subject within 1 year.
25 Thition refunded if the war interferes.
26 There are some opportunities to work in hospitals or laboratories
situated within the tropics
27. Out of state physicians will be expected to pay their board.
28 Plus a matriculation fee of \$10.

## Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

#### BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners the basic sciences were published in The Journal, April 11, page

## NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various centers, June 22-24. Part III. Various centers, June or July. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

#### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Oral. Groups A and B. Cleveland, Jan. 14-15, 1943. Final date for filing application is Dec. 7. Written. Various centers, Nov. 16. Final date for filing application is Oct. 5. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston. American Board of Internal Medical Association. Application should be on file 6 weeks in advance of the date of oral examination. Written. Oct. 19. Final date for filing application is Sept. 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis. American Board of Neurological Surgery: Oral. New York, May 12-13. Sec., Dr. R. Glen Spurling, 404 Brown Bidgs, Louisville, Ky. American Board of Ophthalmology: Oral. Baltimore, June 6, and Philadelphia, June 8. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis,

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Oral and Written. Chicago, Jan. 9-10. Final date for filing application is Nov. 1. Sec., Dr. Guy A. Caldwell, 3503 Prytania St., New Orleans.

AMERICAN BOARD
Chicago Nov. 2-3. ""en. Locally, Sept. 18. Oral. dication is July 1. Sec., Dr.

AMERICAN BOARD

Chicago, Nov. 2-3.

C. A. Aldrich, 707

AMERICAN BOARD of PSYCHIATRY AND NEUROLOGY: New York, December. Final date for filing application is Oct. 1. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

## Bureau of Legal Medicine and Legislation

#### MEDICOLEGAL ABSTRACTS

Malpractice: Notice to City as Prerequisite to Suit for Malpractice.-The municipal law of the city of New York imposes liability on the city for any damages resulting from the malpractice of a physician while rendering gratuitous services to a person in a public institution maintained by the city. It further provides that no action may be maintained against the city or the physician unless the notice requirements of the law are strictly complied with. Notice of intention to commence an action against the city is required to be served on the city within six months after the cause of action accrues. July 6, 1937 the plaintiff, a charity patient in the Fordham Hospital, underwent an appendectomy performed by the defendant physician. A gauze pad was left in the plaintiff's abdominal cavity. In January 1938 the presence of the pad was discovered and removed by another physician. Subsequently the plaintiff filed suit against the defendant physician for malpractice and on April 26, 1938, more than two months after the action was commenced, served the required notice on the city. The defendant physician filed a motion to dismiss the complaint and, from an adverse judgment, appealed to the supreme court, appellate division, first department, New York.

The plaintiff admitted that notice had not been served on the city within the required six months period but contended that her substantial compliance with the law was sufficient. She testified that she did not know of the existence of the pad in her abdominal cavity until it was removed in January 1938, and that she was then advised by the physician who removed it that she could not sue because she was a charity patient. She also testified that she underwent a hernia operation in March 1938 and was confined to her home until April 22. The plaintiff argued that these facts excused a strict compliance with the notice provision and that she served the notice as soon as she was able to do so. The appellate division pointed out that in a former appeal of this same case (Derlicka et al. v. Leo et al., 22 N. E. (2d) 367, J. A. M. A. 115:2023 [Dec. 7] 1940) it had been held that a strict compliance with the notice provisions was required in a suit of this nature. Even if a substantial

compliance was sufficient, the court added, the plaintiff's proof did not indicate that degree of compliance. Her testimony showed that she was at home and in her right mind on and after March 22, 1938. She could have served the notice then, either personally or by her attorney. The fact that she did not discover the malpractice for some time did not aid her, because the right of action arose at the time the negligent act was committed whether the plaintiff knew of the negligence or not. The judgment for the plaintiff was therefore reversed and the defendant's motion to dismiss granted. The Court of Appeals affirmed the judgment of the lower court in dismissing the complaint .- Derlicka v. Leo. 19 N. Y. S. (2d) 949 (N. Y., 1940); 31 N. E. (2d) 47 (N. Y., 1940).

Medical Practice Acts: Use of Heat Treatment by Chiropodists.—Section 24 of the medical practice act of Illinois penalizes any person who holds himself out to the public as being engaged in the diagnosis or treatment of human ailments; or who suggests or prescribes any form of treatment for the cure or relief of any physical or mental ailments of any person with intent of receiving a fee or compensation therefor; or who shall diagnosticate, operate on, profess to heal or treat human ailments or maintain an office for such purpose, if he does not "then possess in full force and virtue a valid license issued by the authority of this state to practice the treatment of human ailments in any manner." The defendants, licensed chiropodists, were charged, in two separate suits which were later consolidated, with having violated the foregoing section in that they applied heat to a patient's arm and treated the blisters which resulted by the use of a hypodermic syringe, a surgical knife and the application of salve. The evidence showed that the complaining witness, accompanied by a friend, went to the defendants' shoe store and that one of the defendants wrapped a hose or cable around her shoulder, arm and wrist and turned on a machine which produced heat. After heat had been applied for some time the cable or hose was removed and it was discovered that four or five blisters had resulted from the treatment. One of the defendants opened two of the blisters with a kmir, applied a green salve, bandaged the arm and directed the patient not to remove the bandages for two or three hours. On completion of the treatment, the patient paid the defendant \$5 to cover the initial treatment as well as one future treatment. Because of pain caused by the blisters, the patient returned to the defendants for treatment, one of whom then used a lypodermic syringe to draw liquid from the blisters, washed the burns, applied green salve to the sores and again bandaged the arm. From judgments of conviction, which were affirmed by the appellate court, the defendants appealed to the Supreme Court of Illinois.

The defendants first contended that, since they were licensed to practice chiropody, they were not persons who did not possess a license to treat human ailments "in any manner," and were therefore not violating section 24. The Supreme Court held that the defendants had clearly misconstrued the words "in any manner." Those words, said the court, require a person to have a valid license to practice the treatment of human ailments in the manner in which such treatment is practiced. The construction urged by the defendants, continued the court, would authorize a licensed chiropodist to practice surgery, or even the most intricate branches of medical treatment, simply by virtue of his chiropody license. The court therefore held, in effect, that, since the defendants were not licensed to practice as they did, it did not matter what other acts they were entitled to perform. The defendants next contended that a mere isolated instance of treatment did not prove that they were engaged in the practice of medicine. The Supreme Court said, however, that the acts enumerated in section 24 were in the disjunctive and that the commission of any one of them, without possessing the proper license, was a violation of the law. Finally, the defendant contended that the evidence was not sufficient to prote them guilty beyond a reasonable doubt. The Supreme Court held that the trial judge and jury had seen and heard the witnesses and were in a better position to determine their credibility. The mere fact that the defendants' evidence was contradictory to that of the state, said the court, constitutes no grounds to reversal. The judgments of conviction were therefore sustained -People v. Friedman (two cases), 29 N. E. (2d) 89 (III., 1949).

Chiropractic: Office Sign an Indication of Practice .--For over a year the defendant had maintained an office for the practice of chiropractic on the ground floor of a building located in the business section of South Tacoma, Wash. On the window facing the street was a sign which read "Thomas F. Bennett, Palmer Graduate, X-Ray, Chiropractic." Similar statements appeared in the classified section of the city telephone directory and on professional cards found in the defendant's reception room. At no time had the defendant possessed a license issued by the state board of chiropractic examiners. Subsequently he was charged with inducing a belief that he was engaged in the practice of chiropractic at a time when he was not licensed. The only witnesses at the trial were two inspectors from the state department of licenses. In addition to the foregoing facts, they testified that they visited and interviewed the defendant in his office on March 4, 1940. While they were waiting in the reception room, the defendant emerged from his private office with a lady to whom he remarked, "I will see you Wednesday." One of the inspectors stated that the defendant admitted that he had no license and that he thought it was unfair to require chiropractors to pass an examination. The other testified that during the interview the defendant said that he did not feel that he needed a license and that in fact he would not accept one if given to him, because a license would not make him capable of performing his work any better. The defendant did not offer any evidence on his own behalf, and the case was submitted to a jury. From a verdict of guilty and a judgment thereon the defendant appealed to the Supreme Court of Washington.

The defendant contended that the judgment should not stand because there was no proof that he had in fact performed any manual operation on a patient or that any one had been induced to believe that he was engaged in the practice of chiropractic. Section 10109 of Remington's Revised Statutes of the State of Washington provided:

Any person who shall practice or attempt to practice chiropractic, . . . or who shall use the title chiropractic, D.C., Ph.C., or any word or title to induce belief that he is engaged in the practice of chiropractic without first complying with the provision of this act, . . . shall be guilty of a misdemeanor.

The court held that the jury was warranted in inferring not only that the defendant induced such a belief but that his inducement was successful. The defendant could not have maintained an office for so long a period without patients, continued the court, he could not have had patients unless they thought he was engaged in practice, and his advertisements could not have become known to the public unless they had been exposed as they were. The court therefore concluded that the defendant had induced a belief that he was engaged in the practice of chiropractic. The judgment of conviction was therefore affirmed.—State v. Bennett, 107 P. (2d) 344 (IVash., 1940).

Privileged Communications: No Waiver Implied by Statement in Application for Insurance; Admissibility of Autopsy Finding.-In his application for a life insurance policy with the defendant company, dated Oct. 6, 1933, the insured stated that he had never been under observation or treatment in any hospital, that he had never been treated for ulcer or diseases of the stomach and that no physician had treated him during the past five years. In reliance on the information stated in the application, the defendant issued a policy to the insured without requiring a medical examination. The insured died on July 21, 1935. In a subsequent suit by the beneficiary, the defendant resisted payment because of alleged false representations in the application. At the trial the defendant offered to introduce the testimony of a physician who claimed to have treated the deceased for peptic ulcer within five years prior to the date of the application. It offered another witness to testify that, within the same period, the deceased spent at least one night in a hospital. Finally it offered to show that the cause of death, as found by an autopsy, was a perforated duodenal ulcer. The admission in evidence of all this testimony was denied on the ground that it was within the protection of the laws of Iowa relating to privileged communications. The trial court directed a verdict for the plaintiff, and the defendant appealed to the Supreme Court of Iowa.

The defendant contended that any privilege which might have existed against the admission of such testimony had been waived by virtue of the representations made by the deceased in his application for insurance and that the defendant had the right to offer evidence showing that such representations were not true. Concerning the testimony of the physician who had treated the deceased for peptic ulcer, the Supreme Court refused to hold that the privilege had been waived. The general rule, said the Supreme Court, should be that, when it appears that the relationship of physician and patient existed, the bar of the statute should be held applicable. The defendant, the court pointed out, could have inserted in the application an express waiver of the privilege or it could have required the insured to submit to a physical examination by its own physician. Since it did neither, it was bound by the existing statutory law relating to privileged communications.

The trial court erred, however, in the opinion of the Supreme Court, in refusing to permit a physician to testify that he had attended the insured within the five year period and that he took him to a hospital. That the physician attended the insured and prescribed for him involved no disclosure of any information obtained professionally. Testimony as to the cause of death as disclosed by the autopsy likewise was not privileged and should have been admitted. The relationship of physician and patient ends, the court pointed out, with the death of the patient. The judgment for the plaintiff was therefore reversed and the case remanded.—Cross v. Equitable Life Assur. Soc. of the United States, 293 N. IV. 464 (Iowa, 1940).

Charitable Hospitals: Liability for Injuries to Special Nurse Employed by Pay Patient. - The plaintiff was a special nurse employed to care for a pay patient in the Georgetown University Hospital, which was owned and operated by the defendant corporation, an eleemosynary institution. While so employed she was scriously and permanently injured by the negligence of a student nurse in the regular employ of the hospital. The evidence showed that the hospital was one of the charitable activities conducted by the defendant and that the defendant had an insurance policy to protect itself from any loss imposed in a tort action arising out of the operation of the hospital. In a suit for damages against the defendant the jury found for the plaintiff, so the defendant filed a motion for judgment notwithstanding the verdict. The motion was heard in the district court of the United States for the District of Columbia.

The defendant contended that it was immune from liability either because it was a charitable institution or because the plaintiff was a beneficiary of the charity and therefore precluded from recovering for her injuries. The district court reviewed the history and development of the "total immunity" theory as applied to charitable institutions, from the early English cases down to the most recent decisions in this country, and held that the doctrine applied only to persons who had actually been the recipients of the bounty of an eleemosynary institution. The defendant then argued that the pay patient who employed the plaintiff was a beneficiary and that the plaintiff partook of the same status. The court said that, even assuming that the patient was a beneficiary, it did not follow that the plaintiff stood in a like relationship. Furthermore, many cases have held that a hospital is liable to a pay patient. Finally the defendant insisted that the plaintiff became a beneficiary of the defendant's charity, independently of her relationship to the patient, when she was permitted to enter on and use the defendant's premises to carry on her vocation as a nurse. To this argument the court answered that the hospital was established and maintained to provide "care and medical attention for suffering humanity," not to furnish a place for the employment of trained nurses. They were not the objects of its beneficent efforts even though the presence of trained nurses specially employed by individual patients may be essential to a hospital in fulfilling its merciful aims. Prior cases have held, the court pointed out, that the following persons were strangers to the charity of an eleemosynary institution and therefore not barred from recovering damages: a special nurse, a doctor attending a patient, a visiting husband, a visiting wife, a visiting friend, and a WPA carpenter temporarily working in a building of a charitable institution. The court therefore concluded that the defendant was not immune from liability for tortious injuries to a special nurse caring for

a pay patient in its hospital, and judgment was entered for the plaintiff on the verdict.—Hughes v. President and Directors of Georgetown College, 33 F. Supp. 867 (1940).

Medical Practice Act: Statutory Procedure for Revocation of License Must Be Strictly Construed. - The petitioner, a duly licensed physician in the state of New York, was charged with fraud and deceit in the practice of his profession. The charges were first heard, as required by the Education Law, by a subcommittee of the Committee on Grievances appointed by the Board of Regents of the University of the State of New York. The subcommittee reported its recommendations to the Committee on Grievances, which determined on the merits that the petitioner was guilty. Subsequently the Board of Regents followed the recommendations of the Committee on Grievances and suspended, for two years, the petitioner's license to practice medicine. From such action of the Board of Regents, which was approved by the Supreme Court, appellate division, third department, New York, the petitioner appealed to the Court of Appeals of New York.

The petitioner contended that the action of the Committee on Grievances was void because it was not strictly pursuant to statute. The law provides that after the subcommittee has heard the charges and reported to the Committee on Grievances, that committee ". . . shall determine said charges upon their merits (the vote of each member of said committee to be recorded as part of the committee's findings), It appeared from the record in this case that the entire Committee on Grievances, consisting of ten members, met on Dec. 1, 1938 to determine the petitioner's guilt or innocence. The minutes of that meeting, however, show that only nine members voted, one member being recorded as "not voting." respondent, Board of Regents of University of State of New York, contended that the lack of unanimity in the December 1 vote was legalized by a unanimous vote on Jan. 5, 1939, concerning the form of disciplinary action to which the petitioner should be subjected. The Court of Appeals refused to sustain that contention, however. It pointed out that rigid qualifications were required to be met before a license to practice medicine could be obtained and that such a license, when obtained, was a valuable right that could only be taken away by following a strict statutory procedure. Since the statute required a unanimous vote by the Committee on Grievances, concluded the court, a determination of the petitioner's guilt on the basis of a nonunanimous vote did not comply with the mandatory requirements prescribed by the legislature. The order revoking the petitioner's license was accordingly reversed. -Hilfer v. Board of Regents of University of State of New York, 28 N. E. (2d) 848 (New York, 1940).

Accident Insurance: Carbon Monoxide Gas as "Poison."-The defendant issued a life insurance policy which provided for the payment of double indemnity if the insured suffered an accidental death not resulting directly or indirectly from poison. During the life of this policy the insured died as a result of accidental inhalation of carbon monoxide gas. In a subsequent suit by the beneficiary to recover under the double indemnity provision, the plaintiff introduced evidence tending to show that death due to the inhalation of carbon monoxide gas is the result of asphyxiation, not poison. A physician called by the plaintiff testified that carbon monoxide, when inhaled, combines with the hemoglobin in the blood and thus prevents the absorption of oxygen and its circulation throughout the body. The result was similar to death by drowning, he said, where there is suffocation because of an insufficient supply of oxygen. Furthermore, he continued, poisons are substances which, when they enter the body, destroy the tissues in whole or in part, but carbon monoxide destroys neither tissues nor cells. In conclusion, this witness stated that death resulting from the inhalation of carbon monoxide is due to asphyxia, anoxemia, lack of oxygen in the blood; not from its poisonous action. "It [carbon monoxide gas] isn't a poison. It isn't a poisonous gas. It doesn't destroy tissue." The defendant offered no testimony but cited many dictionaries, encyclopedias and medical works referring to carbon monoxide as a poisonous gas and to its effect as carbon monoxide poisoning. The lower court entered a judgment for

the plaintiff, and the defendant insurance company appealed to the Supreme Court of Missouri, Division No. 1.

The defendant contended in effect that the fact that carbon monoxide is a poison is of such common knowledge that expert testimony should not have been admitted in an attempt to prove otherwise and that the deceased should be held, as a matter of law, to have died from poison. With this contention, the Supreme Court disagreed. In the first place, if the defendant had intended to deny a recovery for death resulting from asphyxiation by gas, the court pointed out, it could easily have so stated in the policy. The test of the meaning of words commonly used should be their ordinary and popular meaning; they should not be construed in the broadest sense possible to include meanings to which they would not be applied by most people. The court expressed agreement with the Supreme Court of Michigan as stated in Kingsley v. American Central Life Ins. Co., 259 Mich. 53, 242 N. W. 836, that "the natural obvious meaning of the word 'poison'-that understood by people at large"-would not include "asphyxiation" from inhaling carbon monoxide gas. Most persons, continued the court, consider a poison as being a potion containing a deadly ingredient. Webster's New International Dictionary so defines it. On the other hand, Webster's definition of asphyxia does not mention poison. The judgment for the plaintiff was accordingly affirmed, with certain modifications.—Cleaver v. Central States Life Ins. Co., 142 S. IV. (2d) 474 (Mo., 1940).

Workmen's Compensation Acts: Cancer Attributed to Trauma.—The deceased, an employee of the Macon County Coal Company, was struck by some dislodged rock, sustaining lacerations of his lip, chin and scalp, a fractured pelvis with upward and inward displacement and a rupture of the urefira at the bladder neck. He received periodic hospitalization and medical treatment for about nine months, when a blood count showed secondary anemia. Six days later a roentgenogram disclosed a cancer of the stomach; about three months later he died. Subsequently the petitioner, wife of the deceased, was granted an award by the industrial commission, but that award was reversed on appeal to the circuit court. The petitioner appealed by writ of error to the Supreme Court of Illinois.

The employer contended that the deceased's death was caused by preexisting cancer, but the petitioner insisted that the cancer was caused by the injury which her husband had received. A physician who testified for the employer admitted that the deceased died as a result of the cancer and that trauma is a cause of cancer. He then stated, however, that he had never seen a traumatic cancer of the stomach and concluded that the deceased did not have one. This opinion was based on the absence of any injury to the deceased in the vicinity of his stomach; the evidence showed, however, that there were bruises on the deceased's hip and abdomen after the accident. The experts who testified on behalf of the plaintiff definitely stated that there was a causal connection between the deceased's injuries and the cancer. One of them, in answer to a hypothetical question, said positively that the deceased's cancer was caused by the injuries he had received. The witness further stated that in his medical practice he had treated traumatic cancer and that, although he himself had seen no traumatic stomach cancers, medical opinion agrees that they do develop and that actual cases have been reported. Ruptures causing stomach cancers, he explained, result from trauma to the pelvic portion of the abdomen and they frequently occur in a section of the abdominal cavity not directly injured.

The Supreme Court admitted that it was difficult for lay persons to decide this question when the opinions of the medical experts were so conflicting, but it held that the evidence was sufficient to sustain the decision of the industrial commission. The deceased was shown to have been healthy prior to the accident and he grew progressively ill following it. He received severe injuries, "an admittedly recognized cause of cancer," in the region where his cancer was located. The Supreme Court therefore concluded that the evidence was competent to establish that the impaired health and the subsequent death were the result of the accidental injuries. The judgment appealed from was accordingly reversed and the award of the industrial commission confirmed.—Macon County Coal Co. v. Industrial Commission, 29 N. E. (2d) 87 (111., 1910).

## Society Proceedings

#### COMING MEETINGS

American Medical Association, Atlantic City, N. J., June 8-12. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

Jabama, Medical Association of the State of, Montgomery, Apr. 21-23. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for the Study of Allergy, Atlantic City, N. J., June 8-9. Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Texas, June 8-9. Secretary.

American Association for the Study of Goiter, Atlanta, Ga., June 1-3. Dr. Thomas C. Davison, 478 Peachtree St. N.E., Atlanta, Ga., Secretary.

American Association for the Study of Neoplastic Diseases, Winston-Salem, N. C., April 23-25. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.

American Association for the Surgery of Trauma, Boston, June 4-6. Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston, Secretary.

American Association of Genito-Urinary Surgeons, Hershey, Pa., May 27-29. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., May 3-5. Dr. Henry E. Sigerist, 1900 East Monument St., Baltimore, Secretary.

American Association on Mental Deficiency, Boston, May 13-16. Dr. Neil A. Dayton, 100 Nashua St., Boston, Secretary.

American Broncho-Esophagological Association, Atlantic City, N. J., June 8.9. Dr. Paul H. Holinger, 700 North Michigan Blvd., Chicago, Secretary.

American College of Chest Physicians, Atlantic City, N. J., June 6-8. Dr. Paul H. Holinger, 500 North Dearborn St., Chicago, Secretary. American College of Physicians, St. Paul, Apr. 20-24. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.

American Dermatological Association, Hot Springs, Va., May 31-June 4. Dr. Harry R. Foerster, 208 East Wisconsin Ave., Milwaukee, Secretary.

American Federation for Clinical Research, Minneapolis, Apr. 20-21. Dr. Thomas M. Durant, 3401 North Broad St., Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., June 8-9. Dr. J. Arnold Bargen, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Heart Association, Atlantic City, N. J., June 5-6. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.

American Human Serum Association, Atlantic City, N. J., June 8. Dr. Maurice Hardgrove, 3321 North Maryland Ave., Milwaukee, Secretary. American Laryngological Association, Atlantic City, N. J., May 25-27.
Dr. Charles J. Imperatori, 108 East 38th St., New York, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, N. J., June 1-3. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medical Women's Association, Atlantic City, N. J., June 6-7. Dr. Ada Chree Reid, 102 East 22d St., New York, Secretary.

Dr. Ada Chree Reid, 102 East 22d St., New York, Secretary.

American Neurological Association, Chicago, June 4-6. Dr. Henry A.
Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 1-3. Dr.
Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Baltimore, June 3-6. Dr. Charles W.
Peabody, 474 Fisher Bldg., Detroit, Secretary.

American Otological Society, Atlantic City, N. J., May 28-29. Dr. Isidore Friesner, 101 East 73d St., New York, Secretary.

American Pediatric Society, Sky Top, Pa., Apr. 30-May 2. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Proctologic Society, Atlantic City, N. J., June 7. Dr. William H. Daniel, 1930 Wilshire Blvd., Los Angeles, Secretary.

American Psychiatric Association, Boston, May 18-22. Dr. Winfred Overholser, St. Elizabeths Hospital, Washington, D. C., Secretary.

American Radium Society, Atlantic City, N. J., June 8-9. Dr. Axel N. Arneson, 4952 Maryland Ave., St. Louis, Secretary.
American Society for Clinical Investigation, Atlantic City, N. J., May 4. Dr. Eugene M. Landis, University of Virginia Hospital, Charlottesville,

Va., Secretary.

American Society of Clinical Pathologists, Philadelphia, June 5-7. Dr. Alfred S. Giordano, 531 North Main St., South Bend, Ind., Secretary,

American Therapeutic Society, Atlantic City, N. J., June 5-6. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Sceretary.

American Urological Association, New York, June 1-4. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Arizona State Medical Association, Prescott, May 25-30. Dr. W. Warner Watkins, 15 East Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Hot Springs National Park, Apr. 27-29. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association for the Study of Internal Secretions, Atlantic City, N. J., June 8-9. Dr. Henry H. Turner, 1200 North Walker St., Oklahoma City, Secretary.

Association of American Physicians, Atlantic City, N. J., May 5-6. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

California Medical Association, Del Monte, May 4-7. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, Middletown, June 3-4. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Georgia, Medical Association of, Augusta, Apr. 28-May 1. Dr. E. D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Illinois State Medical Society, Springfield, May 19-21. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

Kansas Medical Society, Wichita, May 11-14. Mr. C. G. Munns, 112 West Sixth St., Topeka, Executive Secretary.

Louisiana State Medical Society, New Orleans, Apr. 27-29. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 28-30.

Dr. Richard T. Shackelford, 1211 Cathedral St., Baltimore, Secretary. Massachusetts Medical Society, Boston, May 26-27. Dr. Michael A. Tighe, 8 Fenway, Boston, Secretary.

Medical Library Association, New Orleans, May 7-9. Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary.

Mississippi State Medical Association, Jackson, May 12-14. Dr. T. M. Dye, P. O. Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, Apr. 27-29. Mr. E. H. Bartelsmeyer, 634 North Grand Blvd., St. Louis, Executive Secretary.

National Gastroenterological Association, New York, June 3-5. Dr. G. Randolph Manning, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, Philadelphia, May 6-9. Dr. Charles J. Hatfield, 1790 Broadway, New York, Secretary.

Hatfield, 1790 Broadway, New York, Secretary.

Nebraska State Medical Association, Omaha, May 4-7. Dr. R. B. Adams, 416 Federal Securities Bldg., Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 12-13. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, Apr. 21-23. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New York, Medical Society of the State of, New York, Apr. 27-30. Dr. Peter Irving, 292 Madison Ave., New York, Secretary.

New York State Association of Public Health Laboratories, Cooperstown, May 18. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.

North Carolina, Medical Society of the State of, Charlotte, May 11-13. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Jamestown, May 18-20. Dr. L. W. Larson; 221 Fifth St., Bismarck, Secretary.

Ohio State Medical Association, Columbus, Apr. 28-30. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, April 22-24. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Executive Secretary. Pacific Coast Oto-Ophthalmological Society, Portland, Ore., May 11-14. Dr. C. Allen Dickey, 450 Sutter St., San Francisco, Secretary.

Rhode Island Medical Society, Providence, June 3-4. Dr. William P. Buffum, 122 Waterman St., Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 2. Dr. W. C. Spain, 116 East 53d St., New York, Sec-

retary.

South Carolina Medical Association, Myrtle Beach, May 19-21. Dr. Julian P. Price, 105 West Cheves St., Florence, Secretary.

South Dakota State Medical Association, Sioux Falls, May 13-15. Dr. Clarence E. Sherwood, 1071/2 Egan Avenue South, Madison, Secretary. Texas, State Medical Association of, Houston, May 11-14. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

#### CENTRAL SOCIETY FOR CLINICAL RESEARCH

Fourteenth Annual Meeting, Held in Chicago, Nov. 7 and 8, 1941

The President, Dr. LAWRENCE D. THOMPSON. St. Louis, in the Chair (Concluded from page 1324)

#### Further Experimental and Clinical Studies on Gramicidin

Drs. Wallace E. Herrell and Dorothy Heilman, Rochester, Minn.: The bacteriostatic effect of gramicidin and tyrocidine, the two substances obtained from a soil bacillus, has been studied by the tissue culture technic. Small amounts of gramicidin (0.0005 to 0.0025 mg.) inhibited the growth of all strains of pneumococci tested. Slightly larger amounts (0.005 to 0.01 mg.) were required to inhibit strains of hemolytic streptococci, whereas still larger amounts were necessary to prevent growth of Streptococcus faecalis, Streptococcus salivarius and the staphylococcus. Tyrocidine is much less effective than gramicidin against all of these organisms. We observed earlier that gramicidin was extremely hemolytic even in small amounts. Dubos reported that small amounts of dextrose would prevent the hemolysis produced by gramicidin. Subsequent studies in our laboratory reveal that after twenty-four hours of incubation 1 microgram per cubic centimeter of gramicidin will cause complete hemolysis of 1 per cent suspension of sheep erythrocytes in the presence of 184 mg. of dextrose per hundred cubic centimeters. No hemolysis was observed in preparations containing 1 microgram of gramicidin per cubic centimeter in the presence of 396 mg. of dextrose per hundred cubic centimeters after twenty-four hours of incubation. However, amounts of dextrose as high as 1,960 mg. per hundred cubic centimeters did not prevent hemolysis from occurring in twenty-four hours in preparations containing 100 micrograms of gramicidin per cubic

centimeter. The amounts, therefore, of dextrose necessary to prevent hemolysis are entirely out of the physiologic range.

Studies on cytotoxicity have been made with an amount of gramicidin (5 micrograms per cubic centimeter of tissue culture mediums) which is bacteriostatic for pneumococci and hemolytic streptococci. This amount does not appear to inhibit the migration of lymphocytes or macrophages or to inhibit the normal growth of fibroblasts. Since this amount of gramicidin is actively hemolytic for erythrocytes suspended in the same medium, it appears that the hemolytic effect of gramicidin accounts for a good deal of its toxicity for animals.

For clinical purposes the crude substance tyrothricin has been used. Because of the apparent toxicity, it has not been administered by mouth or intravenously. The substance has been applied locally and has been instilled into body cavities, including the paranasal sinuses, the urinary bladder and the pleural cavity. In general, lesions infected with hemolytic streptococci and Str. faecalis have responded more favorably than conditions in which staphylococci were present. This parallels the results noted in the bacteriostatic studies. The preparation used was a solution containing 400 micrograms of tyrothricin per cubic centimeter. Tyrothricin has been used in treatment in 50 clinical cases. In 14, sinusitis was present. In 6 cases of cystitis and 4 of empyema, tyrothricin was used in treatment. The remainder of the cases formed a miscellaneous group including cases of infected postoperative wounds, infectious dermatoses and stasis ulcers. The response was somewhat irregular, but for the purpose of analysis the results fall into three general groups: good, fair and poor. The results could be considered good in less than half (43 per cent) of the cases. Clinical results could be considered no more than fair or temporary in a fourth (25 per cent) of the group. Failures or poor results were observed in a third (32 per cent) of the cases.

#### Use of Sulfaguanidine in Nonspecific Ulcerative Colitis and Other Infections of the Bowel

Dr. Joseph B. Kirsner, Enid C. Rodaniche, Ph.D., and Dr. Walter L. Palmer, Chicago: Sulfaguanidine was found by Marshall and his co-workers to be fairly soluble in water and poorly absorbed from the bowel and to reduce the number of coliform organisms in the feces of mice. Large quantities of this drug were given by us to a series of 20 patients, including 12 with nonspecific ulcerative colitis, 2 with acute bacillary dysentery, 2 with lymphogranuloma venereum of the bowel and 4 with miscellaneous infections of the intestinal tract.

Sulfaguanidine, while not as readily absorbed from the bowel as other sulfonamide derivatives, was, nevertheless, absorbed to some extent; when 10 to 15 Gm. of the drug was given daily the level of total sulfaguanidine in the blood reached 10 mg. per hundred cubic centimeters. The bacterial count of the feces usually was decreased considerably and the flora transformed from one predominantly colliform in type to one composed entirely of gram-positive organisms. The bacterial content of the feces increased rapidly when chemotherapy was discontinued.

Toxic reactions occurred in 4 cases in this series and consisted of localized or generalized cutaneous lesions. Evidence of a toxic effect on the bone marrow was noted in 1 instance. There was usually a decrease in the leukocyte count, and occasionally a diminution in the red cell level occurred. Varying quantities of crystalline Ni-acetylsulfanilylguanidine were found in the urine in cases in which it was sought for.

Sulfaguanidine therapy appears to be of value for acute bacillary dysentery but not for paratyphoid B infection. It apparently has no advantage over other sulfonamide derivatives in the treatment of lymphogranuloma venereum. The continued use of sulfaguanidine over a long period may be beneficial in the treatment of chronic nonspecific ulcerative colitis.

With regard to bacillary dysentery, we have been much interested in the susceptibility of Shigella paradysenteriae to these sulfonamide drugs in vitro. We have observed that all cultures tested by us grew out within forty-eight hours in a medium containing 200 mg. of sulfaguanidine per hundred cubic centimeters. However, with sodium sulfathiazole organisms of the Flexner group require about twenty days to grow in a medium with a concentration of 20 to 30 mg, per hundred cubic centi-

meters, but those of the Sonne group are less susceptible to sodium sulfathiazole. They grow out normally in twenty-four hours in a medium containing 1 mg, per hundred cubic centimeters of sodium sulfathiazole, in one week in one containing 80 mg. and in two weeks in one containing 150 mg. These observations would indicate that the bacteria of the Shigella group are less susceptible in vitro to sulfaguanidine than to sulfathiazole.

#### DISCUSSION

DR. M. L. COOPER, Cincinnati: I raised a question concerning the high levels of the drug in the blood which Dr. Palmer obtained and the possible influence of ulcerations of the intestinal tract on such high levels. Marshall's studies indicated that the drug is absorbed only slightly from the intestinal tract, produces low levels in the blood and builds up high intestinal drug levels; hence he thought it would be a good therapeutic agent in bacillary dysentery. During the past summer my associates and I observed 1 child with ulcerative colitis. At the time this child was admitted to the hospital he had severe bloody diarrhea; the diagnosis was dysentery, and he was given sulfaguanidine. The following day when we obtained a report regarding the level of the drug in the blood we were surprised to find that it was 10 mg, per hundred cubic centimeters. We had not been obtaining levèls in children above 2 mg. The next day the level in the blood was 11.7 mg. Therapy with the drug was then stopped. Further study revealed that the patient had ulcerative colitis. Later the child was again given sulfaguanidine, and high levels in the blood were again obtained. The question then arose regarding the influence of ulcers of the intestinal tract on the absorption of this drug. It seemed likely that the high levels obtained in this child might be due to increased absorption through the ulcerative processes. If ulcerations facilitate greater absorption of sulfaguanidine, it may be that extraordinarily high levels in the blood should lead one to think of the possibility of an ulceration of the intestinal tract when an ulceration may not otherwise be suspected.

Dr. H. MARVIN POLLARD, Chicago: I should like to ask Dr. Kirsner if in severe ulcerative colitis the patients have had improvement, improvement either in temperature or in the number of stools, and if he noticed an increase in the number of stools in those who did not show improvement.

DR. JOSEPH B. KIRSNER, Chicago: The mechanism responsible for the high levels of the drug in the blood is not apparent. Dr. Cooper's explanation seems plausible. We have attempted to be cautious in the interpretation of our results in the treatment of ulcerative colitis because it is a disease which is characterized by spontaneous remissions not attributable to specific therapy. We thought that, in the 4 cases in which it was considered that improvement occurred, the drug did have something to do with the improvement. The clinical change was characterized by a return of the temperature to normal and by a decrease in the number of stools. The stools became better formed, and there was also improvement in the proctoscopic appearance of the rectal mucosa. In cases in which improvement did not occur during sulfaguanidine therapy we did not observe an increase in the number of stools.

## Combining Drug to Stimulate the Human Colon

HARRY F. ADLER, PH.D., and DRS. A. J. ATKINSON and A. C. Ivv, Chicago: Four adults with colostomy served as subjects in experiments conducted to find combinations of stimulating drugs which would supplement one another or act synergistically to stimulate the colon. Prostigmine or physostigmine combined with solution of posterior pituitary have supplementary action. Prostigmine and ergotamine act synergistically. The simultaneous injection of small amounts of solution of posterior pituitary, prostigmine and ergotamine resulted in strong propulsive and nonpropulsive colon motility with repeated evacuations of gas and material. Most important is the fact that this strong action on the colon was not accompanied by side effects.

#### DISCUSSION

DP. LOUIS N. KATZ, Chicago: Did ergotamine increase the effectiveness of propulsion of solution of posterior pituitary and prostigmine? A glance at the tables presented fails to themore strate that this was so.

Dr. Arthur J. Atkinson, Chicago: I am sorry that I did not emphasize that point. Ergotamine did increase the effect of solution of posterior pituitary and prostigmine. Ergotamine of itself did nothing. I did not point out that the effects we obtained with ergotamine and prostigmine were achieved with one-half the dose that we used in the experiment with prostigmine alone. I have not said anything about the clinical application, and it remains to be seen whether combinations of these drugs clinically will produce propulsive motility as it is seen in the normal colon. We are using patients with a normal colon and not those with adynamic ileus or with megacolon.

# Treatment of Hepatic Cirrhosis with Choline Chloride and Diet Low in Fat and Cholesterol

DRS. G. O. BROUN and R. O. MUETHER, St. Louis: In experiments on the production of atherosclerosis in rabbits by means of diets high in cholesterol the development of a fatty liver was uniformly observed, and in prolonged experiments a number of animals showed hepatic cirrhosis. Administration of choline decreased the severity of fatty hepatic changes. We observed the experiments of Griffith on the effects of diets low in choline. In rats subjected to such diets a fatty liver develops. Administration of choline will prevent such fatty changes, and administration of the amino acid methionine will give a similar protective action. Addition of cholesterol to low choline diets appears to increase the toxic effects.

On these bases we have been treating patients with hepatic cirrhosis for more than two years by the administration of choline chloride in a dose of 1 Gm. daily and by giving diets low in animal fats and cholesterol. The daily intake of fat was limited to approximately 70 Gm. The protein content of the diet was increased to as much as 100 Gm. daily in cases in which the plasma proteins were depleted. This protein was largely supplied as skimmed milk since casein has a high methionine content. The remainder of the caloric requirement was supplied by carbohydrate. Fish liver oil concentrates were added as supplementary sources of vitamins A and D.

A number of patients with portal cirrhosis of the liver have responded well to this method of treatment. Elimination of ascites, decrease in the size of the liver, increase in plasma proteins with return of the albumin-globulin ratio to a more normal level, improvement in anemia, increased bromsulphalein elimination, raised hippuric acid synthesis and decrease in blood bilirubin and blood cholesterol were among the evidences of clinical improvement secured. Persistence in treatment is necessary. One patient, who had ascites for eighteen months requiring eighty-nine paracenteses, after fourteen months of treatment has remained completely free from ascites for more than ten months. While we have no doubt that the diet alone is beneficial, I patient was treated by the use of the diet, diuretics and plasma transfusions for about six months without much improvement. Continuation of the diet with the addition of choline resulted in disappearance of the ascites after this had been present over a year. It has not recurred in the last four months.

#### DISCUSSION

DR. WALTER L. PALMER, Chicago: The interesting report presented illustrates the importance of trying to do something for patients with cirrhosis of the liver and ascites. The clinical and pathologic evidence that alcohol plays a primary role in cirrhosis of the liver is becoming more convincing. It is difficult to evaluate such factors as choline and cholesterol. We have had in the past year one experience similar to that reported by Dr. Broun, in a patient with cirrhosis and ascites who regained a satisfactory state of health after the institution of a high carbohydrate-low fat diet. In this case, because of certain recent experiments we used brewers' yeast in large quantities. I wonder if Dr. Broun has tried yeast. The question arises whether choline or yeast is of any more value than diet.

DR. HENRY T. RICKETTS, Chicago: Dr. Broun has shown that he can influence ascites by this method. I am not sure, however, that he has shown he can influence cirrhosis, except possibly in the 1 case in which the liver decreased in size. It is difficult to conceive how the administration of choline or a low fat diet could alter the process of fibrosis once it has become firmly established. It is well known that fatty infiltration can

be prevented by appropriate means, but how a nodular and fibrotic liver can be reduced in size is a question which needs explanation.

DR. G. O. BROUN, St. Louis: In these cases we have not used yeast in large quantities. In the second case we tried vitamin B concentrates in large quantities for several months. During this period there was no improvement. I admit that the question whether equally good results might be secured by treatment with diet alone is unsettled. We have, however, handled several patients with diet alone, some of whom have improved. It is my impression that these patients as a group have not done as well as those receiving choline also. That remains for future demonstration. Regarding diet, it may be recalled that the second patient was treated with diet alone for many months without improvement, but he seemed to respond when choline was added. The third patient was treated with both choline and diet for several months before there was improvement. I do not think the portion of the liver that has undergone advanced fibrotic changes will be influenced by such treatment as we have used. If the cirrhosis has not gone so far and some portions of healthy tissue remain, it is known that the liver has tremendous regenerative activity. Given favorable conditions, in time the healthy liver tissue may regenerate and some improvement in hepatic function will occur. Of the cases studied, in 2 there was a decrease in the size of the liver. There was also definite improvement in the jaundice in 1. Ascites disappeared in all 4 cases reported.

#### Relationship of Steroids of Adrenal Cortex to Shock

DR. S. C. FREED, I. SHLESSER and E. LINDNER, Chicago: The adrenal cortex is known to protect the animal against the development of secondary shock after trauma, infection or the administration of pharmacologic agents. Adrenal cortex steroid therapy has been suggested for use in the treatment of these conditions. There is evidence that the response of the peripheral vascular system is involved in this relationship. For this reason adrenal cortex preparations were studied for their effect on capillary permeability by Menkin's "leukotaxine" method. Crystalline corticosterone and commercial adrenal cortex extract were found to prevent the increase in skin capillary permeability which follows leukotaxine administration. Crystalline desoxycorticosterone was unable to do so. It is of considerable interest that compound E, which closely resembles corticosterone both physiologically and chemically, is unable to neutralize the effect of leukotaxine.

These experimental results may explain the qualitative differences in the effects of the various adrenal cortex preparations in the treatment of shock. Thus, desoxycorticosterone is capable of combating the shock due to muscle trauma, water intoxication and intraperitoneal injections of dextrose solution but not that following intestinal manipulation, while corticosterone is of benefit in treating the shock following intestinal manipulation. This indicates that a toxic factor similar to leukotaxine may be elaborated by trauma to the intestine resulting in an increased capillary permeability, while the other forms of shock may be due principally to extreme shifts of body fluids unrelated to capillary changes.

#### DISCUSSION

Dr. Edward H. Rynearson, Rochester, Minn.: In view of the publicity being given the use of adrenal cortex extract and desoxycorticosterone acetate in the prevention and treatment of shock it is more than ever imperative that studies such as the one presented should be carried out. Keating, Power and I have presented our studies on the use of desoxycorticosterone acetate in the prevention of surgical shock. Observing its effect in women about to undergo the radical removal of breasts, we were unable to detect any clinical or laboratory changes in patients receiving this substance as compared with normal controls. This study was not performed with adrenal cortex extract, and it was not tried with any operations other than radical mastectomy.

Dr. Louis N. Katz, Chicago: Drs. Killian and Perlow, Mr. Asher and I have been using desoxycorticosterone in another type of experiment. We have found that occlusion of the main veins to the limb will lead to death of an animal in four to twelve hours with the symptoms of shock. We have

demonstrated that this shocklike state is due to the accumulation of fluid in the animal's leg. We have found, in as yet unpublished results, that the preliminary use of desoxycorticosterone tends to prevent death and tends to alleviate shock in such animals. It seems from our results, therefore, that desoxycorticosterone is of value in the treatment of the form of shock due to loss of plasma fluids, and its use would be justified clinically as a prophylactic agent. The demonstration of its use by clinical investigation is unsatisfactory, since one cannot predict which patient will have shock. Furthermore, our animal experiments suggest that it cannot be used effectively after shock has appeared. Not all forms of shock may be due to the same mechanism, so that desoxycorticosterone therapy may not be effective in all. I am sure that as knowledge grows the rationale for use of desoxycorticosterone as well as of other suggested therapeutic agents in shock will gradually become clearer.

Dr. S. C. Freed, Chicago: On a theoretical basis the use of desoxycorticosterone in the treatment of shock would be appropriate when there is fluid loss unrelated to any factor which renders the capillaries more permeable. When such factors exist, as after injury to the intestine, then either natural cortex extract or corticosterone, the substance in the extract which is probably responsible for the reduction in permeability of the capillaries, is indicated.

#### Treatment of Edema with an Oral Mercurial Diuretic

DR. JOSEPH F. BORG, St. Paul: Thirty-nine patients with edema were given orally tablets of a complex mercury compound, sodium salicyllallylamide-o-acetate, with theophylline (salyrgan-theophylline tablets) to determine their diuretic effect. Each tablet contained 0.08 Gm. of salyrgan (containing 0.031 Gm. of mercury) and 0.04 Gm. of theophylline. The patients included 19 men and 20 women from 40 to 80 years of age. Maintenance doses of digitalis were given to patients with heart disease, and 6 Gmi of ammonium nitrate was given daily to all patients. All patients were maintaining stationary weight levels before the therapy was started, and results were judged by the water loss shown by daily weight determinations. Varying methods of administration revealed that best results, with the least toxicity, were obtained with divided daily doses, usually six tablets daily. Observations made over periods as long as sixteen months revealed excellent results in 28 patients, fair in 5 patients and none in 6 patients. Men and women responded equally well. Varying toxic manifestations (nausea, diarrhea, weakness and abdominal pain) occurred in 15 patients but were severe enough to necessitate the discontinuance of therapy in only 3 patients. No renal or hemic complications were noted. The 6 failures reported occurred among the patients treated earlier and 5 were probably due to an inadequate dose. Only I patient failed to respond when an apparently adequate trial was given.

#### DISCUSSION

DR. WILLIAM H. BUNN, Youngstown, Ohio: There are several reasons why this might be a useful remedy. I shall discuss only one. It is often difficult to find a vein suitable for intravenous injection in an obese or an edematous person. Formerly rectal suppositories of the mercurial diuretic were used with good effect, but this practice has had to be discontinued because of toxic effects. I have used the preparation for 16 patients with only one severe reaction (hematemesis); there were several other milder evidences of intolerance. It would seem worth while to continue this experiment, for most patients have a satisfactory diuretic effect.

# Diagnostic Value of Certain Studies of Renal Function in Cases of Addison's Disease

DRS. E. J. KEPLER and F. J. ROBINSON and M. H. POWER, Ph.D., Rochester, Minn.: Two comparatively simple diagnostic procedures based on renal function eliminate the necessity of salt deprivation in patients suspected of having Addison's disease. The two tests are conducted in the following manner: the day before the test the patient eats his usual three meals but omits extra salt. After 6 p. m. he does not eat or drink. At 10:30 p. m. he voids and discards the urine. All urine

voided from 10:30 p. m. until and including 7:30 a. m. is collected, measured and saved for chemical analysis if this proves necessary. At 8:30 a. m. the patient voids again (if possible) and discards the urine. Immediately thereafter he is given 20 cc. of water per kilogram of body weight, or 9 cc. per pound, in the course of forty-five minutes. He is asked to void at 9:30, 10:30 and 11:30 a. m. and 12:30 p. m. Each of the specimens is measured. At 11:30 a. m. or 12:30 p. m. (the exact time is inconsequential) blood is drawn under oil for chemical analysis if the necessity for such studies appears likely, as by this time the results of this first procedure usually will be apparent.

The first procedure is concluded by comparing the volume of urine voided during the night with the volume of the largest single hourly specimen voided between 8:30 a. m. and 12:30 p. m.; the second procedure, by analyzing the urine voided during the night and the blood for the concentrations of urea and chloride. A ratio is calculated from the values obtained in these four determinations.

From a study of 90 patients (40 of whom were proved by salt deprivation and by the Cutler, Power and Wilder procedure to have Addison's disease) it was ascertained that if the volume of urine which was voided during the night was less than the volume of urine voided at any one hour during the morning the patient did not have Addison's disease. If, on the other hand, the volume of urine voided during the night was greater than the volume voided at any one hour during the morning the patient might or might not have Addison's disease, and the chemical analyses which constitute the second procedure were necessary. Under the latter circumstances the following ratio is calculated from the results of the four chemical determinations (the volume of day urine being the largest of the hourly specimens voided during the day and the volume of night urine being the entire amount voided between 10:30 p. m. and 7:30 a. m.):

> A = urea in urine (mg. per 100 cc.) urea in plasma (mg. per 100 cc.) chloride in plasma (mg. per 100 cc.) chloride in urine (mg. per 100 cc.) volume of day urine (cc.) volume of night urine (cc.)

In nearly all instances in which the value for A did not exceed 25 the patient was found to have Addison's disease. Values for A of more than 30 indicated the absence of Addison's disease. The only exceptions encountered occurred in cases of nephritis. In conjunction with clinical evidence, the procedure proved to be decisively diagnostic in cases in which the presence of Addison's disease was proved by other methods.

#### DISCUSSION

DR. PAUL STARR, Chicago: Dr. Kepler and his associates should be congratulated for working out so simple a diagnostic test. Many potent endocrine substances are on the market, and physicians are urged to use them, with the result that a great deal of therapy is carried out which is dangerous to the patient. I am grateful for any procedure which will definitely indicate the need for therapy and which will also definitely show the conditions not requiring treatment.

## The Bronchial Factor in Pulmonary Embolism

DRS. JOSEPH H. JESSER and GEZA DE TAKATS, Chicago: The bronchial tree of the dog was visualized, and the effect of pulmonary embolism on the pattern of the bronchial tree was studied. It was found that powerful bronchoconstriction was produced during embolism, which could be abolished by bilateral vagal section and often by sufficient doses of atropine. Mechanical obstruction to the trachea failed to produce bronchial spasm. Papaverine failed to protect the bronchial tree from this reflex spasm in most instances. These experiments emphasize the existence of widespread autonomic reflexes which occur within the distribution of vagal fibers. The suppression of these reflexes decreases the morbidity and mortality from pulmonary embolism.

## Current Medical Literature

#### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

## American Journal of Clinical Pathology, Baltimore 12:1-72 (Jan.) 1942

*Benign and Malignant Stromal Endometriosis. T. D. Robertson, W. C. Hunter, Fortland, Ore; C. P. Larson, Tacoma, Wash., and G. A. C. Snyder, Spokane, Wash., p. 1.

Sputum Studies in Pneumonia: Effect of Sulfapyridine and Sulfa-hiazole. A. W. Frisch, with technical assistance of Miriam F. Frisch,

Detroit.—p. 16.
Relation Between Liver and Thyroid Gland: I. Blood Iodine as Indicator of Liver Function. A. Cohn and S. E. Feldman, San Francisco. -p. 27.

Morphologic Variations in Adenocarcinoma of Fundus of Uterus, with Reference to Secretory Activity and Clinical Interpretations. N. W. Elton, Buffalo .- p. 32.

. New Standard Slide Test Antigen (Water Purified). B. S. Kline,

Cleveland.—p. 48. Adventitious Substances Removed from Slide Test Antigen by Extraction

with Water. Miriam S. Levy, Cleveland.—p. 62.

Drainage of Coronary Sinus into Left Auricle: Report of Rare Congenital Cardiac Anomaly. L. E. Fieldstein and J. Pick, New York. ~p. 66.

Stromal Endometriosis.—Robertson and his associates discuss the nature of benign and malignant stromal endometriosis as they observed it in 6 instances. The malignant form is interpreted as a low grade sarcoma. Uterine adenomyosis and stromal endometriosis are variants of the same process originating by extrusion of the endometrium into the myometrium. A case is cited in proof of this assertion. Adenomyosis is the more frequent manifestation. After the menopause, stromal endometriosis may either continue to grow or, as in 1 of their patients, regress. This is unlike glandular endometriosis, which always becomes inactive when ovarian function ceases. Microscopically, stromal endometriosis presents a characteristic and readily identifiable picture.

#### American J. Digestive Diseases, Fort Wayne, Ind. 9:1-48 (Jan.) 1942

Clinical and Laboratory Study of Plasma Lipids in Obstructive Jaundice and Several Types of Hepatic Disease. C. A. Jones, Philadelphia.

Comparative Evaluation of Newer Liver Function Tests: (Comparison of Intravenous Hippuric Acid Test, Cephalin-Cholesterol Flocculation Test, Colloidal Gold Test and Serial Bromosulphalein Test with Oral Hippuric Acid Test and Rosenthal Bromsulphalein Test). J. G. Mateer, J. I. Baltz, D. F. Marion and R. A. Hollands, with assistance

of Elizabeth M. Yagie, Detroit.—p. 13.

Genesis of Pellagra, Pernicious Anemia and Sprue. S. Harris and S. Harris Jr., Birmingham, Ala.—p. 29.
Study of Sphincter of Oddi in the Human and the Dog. H. Necheles and D. D. Kozoll, Chicago.—p. 36.

Effect of Food on Sphincter of Oddi in Human Subjects. G. S. Bergh,

Minneapolis .- p. 40. Porphyrinaria in Aged. H. A. Rafsky and B. Newman, New York.

Lymphosarcoma Causing Obstruction at Duodenojejunal Angle: Report of Case. H. J. Svien and A. B. Rivers, Rochester, Minn.—7p. 45.

Pellagra, Pernicious Anemia and Sprue.-The Harrises believe that pernicious anemia, pellagra and sprue are three separate and distinct diseases despite the fact that some symptoms are common to all three and that use of liver or liver extract and a high protein, low carbohydrate diet rich in vitamins is effective. Pernicious anemia differs only in that liver or liver extract therapy must be continued for the rest of the patient's life. Hepatic insufficiency appears to be a factor in the genesis of pellagra, pernicious anemia and sprue. The liver may secrete hormones. Research workers who are prepared to make biologic laboratory investigations may prove or disprove (1) that hepatic insufficiency is the underlying factor in

pernicious anemia and (2) that hormones secreted by the liver may be factors in erythrocytolysis or hemopoiesis. Identical pathologic changes are found in the liver in pernicious anemia and pellagra. It seems possible that hepatic insufficiency by inhibiting the secretion of an endocrine substance which controls erythrocytolysis or hemopoiesis may cause pernicious anemia and that a deficiency of an intrinsic hepatic factor may prevent the utilization or the storage of nicotinic acid, the pellagra preventive factor in vitamin B. Greenspon and Morris suggest a gastric hormone as the intrinsic factor in preventing pernicious anemia. The authors cite instances in which pellagra and pernicious anemia, sprue and pernicious anemia or pellagra, sprue and pernicious anemia coexisted. This suggests common etiologic factors. The frequency of intestinal parasites in anemic patients with pellagra, pernicious anemia or sprue suggests that the intestinal toxemia and hepatic insufficiency may be etiologic factors in some cases.

#### American J. Orthodontics and Oral Surgery, St. Louis 27:599-666 Orthodontics (Nov.) 1941. Partial Index

599-666 Oral Surgery

#### Orthodontics

Psychologic Effects of Malocclusion of Teeth. M. B. Walker, Norfolk,

Va.—p. 599.
Further Investigations of Bone Changes Resulting from Experimental Orthodontic Treatment. C. Breitner, New York .-- p. 605.

#### Oral Surgery

Incidence of Supernumerary and Congenitally Missing Lateral Incisor Teeth in Eighty-One Cases of Harelip and Cleft Palate. J. A. Millhon and E. C. Stafne, Rochester, Minn.—p. 599.

Shock, Respiratory and Cardiac Pailure. L. B. Ellis, Boston.—p. 618.

Local Anesthetics and Their Use in Patients Suffering from Endocrine Disorders. P. Adler, Mako, Hungary.—p. 620.
*Coagulation Globulin in Hemorrhages After Extraction of Teeth, Espe-

cially in Hemophilic Patients. S. van Creveld and R. Hamer, Amsterdam, Netherlands.-p. 628.

Coagulation Globulin for Postextraction Hemorrhage. -Van Creveld and Hamer controlled in 6 patients hemorrhage following the extraction of teeth with a powder of coagulation globulin prepared from cow's plasma. Four of the patients had hemophilia, I had a history of repeated hemorrhages after tooth extraction and 1 had a moderately prolonged coagulation time, which explained a severe hemorrhage after a former extraction. Coagulation globulin powder, which in the normal blood may be the carrier of the coagulation promoting factor, has a definite hemostyptic activity. When a patient with hemophilia is to have an extraction he should be hospitalized. The wound after extraction should be sprinkled with coagulation globulin and a tampon slightly moistened with saline solution applied. This is to be thickly covered with coagulation globulin powder. The tampon should be pressed on the wound by a finger for four to six minutes. It should be renewed every twenty-four hours after the wound has been cleansed. The repeated application of the powder may cause hypersensitivity. Although the risk of this complication is small, the authors intend in the future to use a coagulation globulin powder prepared from human plasma or from the human placenta.

## 27:667-744 Orthodontics (Dec.) 1941. Partial Index 667-746 Oral Surgery

#### Orthodontics

*Effects of Congenital Syphilis on Teeth and Associated Structures in Children. W. D. Johnston, B. G. Anderson and P. F. McAlenney, New Haven, Conn.—p. 667.

First Aid Appliance for Treatment of Fractured Jaw. T. W. Sorrels,

Oklahoma City .-- p. 714.

#### Oral Surgery

Incisive Canal Cysts. M. M. Cohen, Boston.—p. 670. Gas Bacillus Infections, Burns and Tetanus. J. H. Burnett, Boston.

General Anesthesia for Oral Operations. S. C. Wiggin, Boston,-p. 704. Secondary Repair of Cleft Lips and Their Nasal Deformities, J. B. Brown and F. McDowell, St. Louis.-p. 712.

Effects of Congenital Syphilis on Teeth.-Johnston and his associates observed the effects of congenital syphilis on the teeth and oral structures of children by comparing 39 children aged 1 to 15 years who had known congenital or acquired syphilis with a positive Wassermann reaction. The medical histories of 29 of the mothers (all with positive Wassermann and Kahn reactions) of these children were available. Histories of the children were studied with respect to lesions of teeth, eyes, ears, nose, hair and nails. In examining the oral cavity, particular attention was paid to stigmas which might be of syphilitic origin, such as malocclusion and dental caries. Gross examination of the children revealed that 6 had a "saddle nose," 1 fixed pupils and 2 impaired hearing. No intraoral pathologic lesions of the soft tissues were observed. Direct measurement of roentgenograms of the first and second permanent molars disclosed that the second molar of 20 was larger than the first molar and that the first molar of 5 was larger than the second molar. The incisors of 1 child were the same size, while those of 10 could not be compared because of loss of the teeth, Serially cut sections, stained with Delafield's hematoxylin and alcoholic eosin, of eleven teeth from the children revealed no abnormalities attributable to congenital syphilis. The most characteristic dental abnormalities seen were (1) an apparent lack of development in the anterior region, particularly in the maxilla, (2) involvement of the four incisors, two cuspids and the two first molars of the permanent teeth, (3) a huddled appearance of the mamelons, marginal ridges and cusps of the affected teeth and (4) an undersized, malformed appearance of the crowns of the teeth. Eight of the children had a peculiar type of "open bite." The so-called Hutchinson triad (deafness referable to the acoustic nerve, interstitial keratitis and defect of the first maxillary permanent incisor) was not observed.

## American Journal of Public Health, New York 31:1243-1344 (Dèc.) 1941

For Whom the Bell Tolls. A. Wolman, Baltimore,-p. 1243.

Your Years of Contraception as Public Health Service in North Caro lina. G. M. Cooper, Raleigh, N C .; Frances Roberta Pratt and Margaret Jarman Hagood .-- p. 1248

War and Health in Britain. W. Jameson, London, England -p. 1253. Nutrition in Relation to Pregnancy and Lactation. J. Ernestine Becker, H. J. Bickerstaff and N. J. Eastman, Baltimore —p. 1263.

What Is Happening to the Social Gains of the Last Ten Years? Mary Van Kleeck, New York.—p. 1271.

Recent Studies in Influenza. F. L. Horsfall Jr., New York.—p. 1275.

Diagnosis of Epidemic Encephalitis by Complement Fixation Tests

J. Casals, New York.—p. 1281.

Sanitary Engineering Activities of Sanitary Corps, United States Army. W. A. Hardenbergh, Washington, D. C .- p. 1285.

Two Years' Experience in Nutrition Program for National Defense. F. F. Tisdall, Toronto, Canada .- p. 1289.

Public Health Nursing in National Defense. Katharine Tucker, Philadelphia.-p. 1293.

Immunologic Reactions in Rickettsial Diseases, with Special Reference Florence Fitzpatrick and to Time of Appearance of Antibodies. Bettylee Hampil, Glenolden, Pa .- p. 1301.

## American Journal of Tropical Medicine, Baltimore 22:1-120 (Jan.) 1942

Florence Nightingale and Tropical and Military Medicine. T. T. Mackie, New York -p 1.

The Known and the Unknown in Plague. K. F. Meyer, San Francisco

Venomous Snakes, Some Central American Records, Incidence of Snake Bite Accidents. H. C. Clark, Panama, Republic of Panama.—p. 37.
Malaria Reconnaissance of Province of Pinar Del Rio in Cuba H.

Carr and J. Fernandez Melendez, Havana, Cuba—p 51.
Malaria Reconnaissance of Province of Havana in Cuba H. P. Carr, J. Fernandez Melendez, A. Ros and A. Fernandez Melendez, Havana,

Cuba.-p. 63. Varying Infectiousness of Different Patients Infected with Vivas

Malaria, M. F. Boyd, Tallahassee, Fla -p 73
Anopheles (Kerteszia) Bellator Dyar and Knah as Vector of Malaria

in Trinidad, British West Indies L. E. Rozeboom and R. L. Laird,

Prevalence of Amebiasis in Western Hemisphere E. C. Faust, New -p. 93. Orleans.-

*Results of Protozoologic Survey of Food Hardlers at Professional School in Philadelphia. D. H. Wenrich and J. H. Arnett, Philadelphiap. 107.

Protozoologic Survey of Food Handlers,-Wenrich and Arnett state that seven annual examinations of 190 food handlers at a professional school in Philadelphia revealed that the incidence was higher for the employee than for the student group on first examination for Blastocystis, total protozoa, Endolimax, Endameba coli, Dientameba, Chilomastix and Enteromonas The

1,060 students had an incidence of 10.7 per cent for Endamely histolytica as compared with 8 per cent for the employees after one examination. The incidence from an average of three and two-tenths examinations for each employee was considerably higher than that for the first examination in respect to most of the intestinal protozoa. Of the six infections with Endameloa histolytica detected in the employee group, four were found at the first examination, one at the fourth and one at the fifth All of the fifteen infections with this species discovered in the students were found at the first examination. Carriers of Endameba histolytica had no more gastrointestinal symptoms than the others.

## Archives of Dermatology and Syphilology, Chicago 45:259-454 (Feb.) 1942

Verruca Plana and Epithelial Nevus: Including Study of Epiderro-dysplasia Verruciforms M. Waisman, Chicago, and H. Montgomery, Rochester, Minn — p. 259.

Pseudoxanthoma Elasticum L. de Sa Penella and J. Esteves, Lidon, Portugal -p. 283.

Nutritional Dermatoses in Rat: V. Signs and Symptoms Resulting from Diet Containing Unheated Dried Egg White as Source of Protein M. Sullivan and Jane Nicholls, Baltimore—p. 295.

Fibrotic Nodules of Skin. S. E. Sweitzer and L. H. Winer, Minne

apolis -p. 315

Electrosurgical Removal of Plantar Warts F. L. Karp and S B Frank, New York-p. 328. Erythema Elevatum Diutinum Report of Case with Histologic and

Bacteriologic Studies M. F. Engman Jr., St. Louis; R. O. Pinfl, San Jose, Calif, and Zola K. Cooper, St. Louis -p 334.

Sclerema Neonatorum. Report of Case with Autops; Observations

N E Reich, Brooklyn -p 342.
*Extensive Alopecia Areata of Dental Origin: Evidence That Isolated Areas of Alopecia May Be Due to Ipsilateral Foci of Infection J. D Grace, Ann Arbor, Mich -p. 349.

Eruption Due to Sulfamilylguanidine (Sulfaguanidine). N. P. Ringelman, Cincinnati,-p. 353.

*Testosterone Propionate in Treatment of Male Postchmacteric Dermatoses L Hollander and H R. Vogel, Pittsburgh-p 356.

Dermatologic Aspects of Roentgen Ray Field Distribution J. E Gins berg, Chicago, and R S Landauer, Highland Park, Ill.—p. 364

Job's Illness—Pellagra C J Brim, New York.—p. 371.

*Clinical Evaluation of Superfatted Soap R. L. Kile, Cincinnati—

p. 377. Alopecia Areata of Dental Origin .- Complete regrowth of hair is reported by Grace in a case of extensive alopecia areata of three years' duration after several teeth, which were evidently not infected, had been extracted. The teeth contained large fillings of silver amalgam. All but two of the extracted teeth showed evidence of absorption of the filling material. The case demonstrates that improperly filled teeth may be the cause of alopecia areata.

Postclimacteric Dermatoses of Men.-Hollander and Vogel observed the therapeutic effect of the percutaneous use of androgen in the dermatoses of 8 men about and after the climacteric period. The results were most satisfactory. A preparation made from synthetic testosterone propionate was rubbed in over unaffected surfaces of the skin. The use of this substance for the treatment of presentle and senile dermatitis of men appears rational, as the cutaneous lesions in the postclimacteric period appear to be a definite entity. In some instances the generalized dermatitis followed a definite local inflammation produced by local or contact irritation symptoms were ameliorated only after the inunctions had been

Superfatted Soap.-Kile tested the practical use of superfatted soap and a control soap on 57 young women. The evidence indicates that more discomfort was experienced when the control soap than when the superfatted product was used Most of the subjects who reported discomfort with either soap had dry skins. Furthermore, dryness of the skin was observed by more subjects when the control soap than when the superfatted soap was used: the ratio was 3:1 for the entire group and 4:1 for those with dry skins. A few women noticed some improvement in their acne while using the control soap but not while using the superfatted product. Women with dry skins definitely preferred the superfatted soap, while those with normal or oily skins preferred the control soap.

## Archives of Neurology and Psychiatry, Chicago 47:195-352 (Feb.) 1942

*Distant Neuroanatomic Complications of Spina Bifida (Spinal Dysraphism): Hydrocephalus, Arnold-Chiari Deformity, Stenosis of Aqueduct of Sylvius; etc.; Pathogenesis and Pathology. B. W. Lichtenstein, Chicago.—p. 195.

*Pyruvic Acid Studies in Wernicke Syndrome. H. Wortis, E. Bueding,

M. H. Stein and N. Jolliffe, New York.—p. 215.
Induction of Metrazol Convulsions with Patient Under Nitrous Oxide Anesthesia. H. D. Fabing, Cincinnati .- p. 223.

Effect of Emotional Excitement on Insulin Content of Blood: Contribution to Physiology of Psychoses. E. Gellhorn, J. Feldman and A. Allen, Chicago .- p. 234.

Momentary Death and Choreoathetosis Following Nitrous Oxide Anesthesia, with Recovery. E. Kasin and S. Parker, with technical assistance of S. Machover, Brooklyn.-p. 245.

*Association Between Convulsive Seizures and Rheumatic Heart Disease. D. B. Foster, Ann Arbor, Mich .- p. 254.

Correlations Between Patterns of Breathing and Personality Manifesta-tions. J. W. Thompson and W. Corwin, Waltham, Mass.—p. 265. Intraspinal Meningiomas: Clinical and Pathologic Study. M. H. Brown,

Rochester, Minn .- p. 271.

Section of Spinothalamic Tract at Level of Inferior Olive. H. G. Schwartz and J. L. O'Leary, St. Louis.—p. 293. Estrogen Therapy of Agitated Depressions Associated with Menopause.

L. Danziger, Sykesville, Md.—p 305
"Crocodile Tears" Treated by Injection into Sphenopalatine Ganglion.
H. Gottesfeld, Norristown, Pa., and F. H. Leavitt, Philadelphia.

Danlos-Ehlers Syndrome: Report of Case with Transient Paralysis of Vocal Cord. J. D. Sullivan, Albany, N. Y .- p. 316.

Distant Neuroanatomic Complications of Spina Bifida. -From a study of several cases presenting the important neuroanatomic complications of spinal dysraphism and a review of the literature, Lichtenstein finds that in many instances of spina bifida (spinal dysraphism) there is an abnormal fixation of the spinal cord which precludes its adequate rostral migration with continued development. In some cases this abnormal fixation results in a pleomorphic variety of neuroanatomic alterations in distant parts of the nervous system. The alterations are (1) short cauda equina and low lying conus medullaris, (2) abnormal stretching of the spinal cord above the fixation, (3) elongation of the hindbrain with localization in the vertebral canal of the medulla oblongata, the choroid plexus of the fourth ventricle and parts of the cerebellum, (4) dysplasia of some of the cerebellar folia, (5) elongation of the lowermost cranial nerves with their compression at the foramen magnum by the hindbrain, (6) stenosis of the aqueduct of Sylvius, (7) internal hydrocephalus due to stenosis of the aqueduct of Sylvius and to impaction of the hindbrain, (8) deformity of the medulla oblongata and of the hind end of the fourth ventricle, (9) hydromyelia of the uppermost cervical levels of the spinal cord, (10) syringomyelic-like cavitation in the cervical portion of the spinal cord and (11) pressure on the anterior spinal arteries and the vertebral veins at the foramen magnum.

Pyruvic Acid Studies in Wernicke Syndrome.-Wortis and his associates recently observed 34 clinical cases of the Wernicke syndrome which tend to confirm the thesis that the disorder is probably a combination of several nutritional deficiencies and is not due to alcoholism alone. Of the 34 patients, 2 were depressed and refused to eat and 1 had pulmonary tuberculosis and vomiting. Delirium, with its increase in psychomotor activity and hence total metabolism, may increase the requirement of certain of the vitamins and tends to aggravate any latent deficiency state. Other deficiency syndromes, such as pellagra, nicotinic acid deficiency encephalopathy, ariboflavinosis and scurvy, may and do superimpose themselves on or accompany the Wernicke syndrome. All patients receiving adequate vitamin therapy recovered unless a concomitant complicating condition was the cause of death. In patients who recovered the Korsakoff syndrome was the rule, and it did not respond to thiamine therapy. The blood pyruvate level was determined for 11 patients. The level of pyruvate in the blood during fasting ranged from 1.44 to 3.63 mg, per hundred cubic centimeters (normal is 0.77 to 1.17 mg.), and when 7 of the patients were subjected to the additional stress of metabolizing ingested dextrose not only was the maximal rise great but the elevation above the fasting level was maintained for at least four to five hours. The maximal increase in pyruvate did not occur during the first hour as it did in normal subjects but continued to rise until maximal values were reached as late as the fourth hour. After vitamin B therapy, the level of pyruvate in the blood during fasting rapidly returned to normal, but the pyruvic acid curve following the ingestion of dextrose returned to normal only after prolonged treatment. Ophthalmoplegia disappeared and the mental status improved in twenty-four to seventy-two hours. This improvement antedated the return of pyruvate metabolism to normal. Clinical improvement was associated with a definite fall in the level of pyruvic acid in the blood during fasting. The conclusion is that patients with the Wernicke syndrome are unable to metabolize pyruvic acid properly and that prolonged treatment with components of the vitamin B complex corrects this defect.

Convulsive Seizures and Heart Disease.-Foster states that 29 patients with convulsive seizures were encountered among 2,153 with rheumatic heart disease. No patient with an associated convulsive disorder with any suggestion of cranial trauma, syphilis, alcohol, expanding intracranial lesion, uremia or other epileptogenic factors was included in the series. This incidence of 10.76 per cent is higher than that in the general population. Acute rheumatic fever or Sydenham's chorea preceded the convulsive manifestations in 58.6 per cent of the 29 patients, the relation was doubtful in 34.4 per cent and the seizures preceded the rheumatic infection in 6.8 per cent. A familial incidence of convulsive seizures or migraine was six times as frequent among the patients with rheumatic heart disease and seizures as among those with only rheumatic heart disease. Evidence from other sources corroborates the suggestion that the seizures are more than coincidental. Inferential evidence from the common occurrence of paroxysmal cardiac arrhythmia in rheumatic heart disease and the fact that cardiac arrhythmia may be accompanied by seizures affirm the foregoing statement. Several mechanisms associated with the rheumatic state are probably capable of producing seizures in predisposed persons: paroxysmal cardiac arrhythmia, passive congestion of the cerebrum, delayed auriculoventricular conduction time (with or without the superimposition of digitalis) and cerebral infarction.

## Archives of Pathology, Chicago

33:145-294 (Feb.) 1942

Studies of Cartilage: I. Some Effects of Mediums of Different ou Values on Composition of Cartilage. G. M. Hass and B. Garthwaite, New York,-p. 145.

Id.: II. Quantitative Study of Stabilizing Action of Crystal Violet on Tissue Polysaccharide Compounds. G. M. Hass, New York .- p. 163. Id.: III. New Histochemical Reaction with High Specificity for Car-

tilage Cells. G. M. Hass, New York.—p. 174.

Studies on Inflammation: IV. Behavior of Cellular Proteinases in Experimental Tuberculosis of Rabbits. C. Weiss, San Francisco.—

Leukocytosis Promoting Factor in Inflammatory Exudates of Man. V. Menkin, M. A. Kadish and S. C. Sommers, Boston.—p. 188. Presence of Leukocytosis Promoting Factor in Circulating Blood. V.

Menkin and M. A. Kadish, Boston,-p. 193. Effect of Experimental Cirrhosis on Intrahepatic Circulation of Blood

in Intact Animal. K. G. Wakim and F. C. Mann, Rochester, Minn. -р. 198. Dietary Production of Hepatic Cirrhosis in Rabbits, with Analysis of

Factors Involved. M. A. Spellberg, R. W. Keeton, and R. Ginsberg, Chicago.-p. 204. Drainage of Pulmonary Veins into Right Side of Heart. H. Brody,

New York .- p. 221.

Pathologic Aspect of Nutritional Deficiencies in Rats: I. Lesions Produced by Diets Free of Vitamin Bs (Pyridoxine) and Response to Vitamin Bs. W. Antopol, Newark, N. J., and K. Unna, Rahway, N. J.-p. 241.

## Arkansas Medical Society Journal, Fort Smith 38:183-204 (Feb.) 1942

Treatment of Goiter. G. V. Lewis, Little Rock .- p. 183, Contraception Technic and Medical Indications, M. C. Hawkins Jr., Searcy.-p. 186.

Workmen's Compensation as Related to Physicians. P. A. Deisch, Helena .- p. 188.

## California and Western Medicine, San Francisco 56:1-54 (Jan.) 1942

Duodenal Ulcer: Indications for and Extent of Partial Gastrectomy. V. C. Hunt, Los Angeles .-- p. 6.

Emergency Transfusions: Suggestions for Hospitals, Clinics and Laboratories. J. R. Upton, San Francisco.—p. 9.

Newer Physiology of Biliary Tract and Its Application to Biliary Tract
Disease. L. Goldman, San Francisco.—p. 10.

Psychiatric Problems in Private Practice: Their Management. H. D. Eaton, Los Angeles .-- p. 14.

Erythroblastosis Fetalis: Report of Case. R. D. Cutter and B. L. Davis, Palo Alto,-p. 17.

## Canadian Public Health Journal, Toronto 33:1-50 (Jan.) 1942

Responsibility for Following Up Venereal Disease Contacts. W. H. Avery, Toronto .- p. 1.

Development of County Health Units in Province of Quebec. B.

LaHaye, Quebec.—p. 7.
Relationship of the Medical Officer of Health to the Local Board of Health. J. H. Munro, Maxville, Ont .-- p. 13.

Chemical and Toxicologic Studies on Phenothiazine. R. J. Schnitzer, C. Siebenmann and H. D. Bett, Toronto.—p. 17.
Restaurant Personnel and Methods. A. G. Macnab, Westmount, Que.

---р. 25.

#### Cancer Research, Baltimore

#### 2:1-78 (Jan.) 1942

Inhibition of Diphosphopyridine Nucleotide System by Split Products of Dimethylaminoazobenzene. C. J. Kensler, S. O. Dexter and C. P. Rhoads, New York .- p. 1.

Neurofibromas of Rat Ears Produced by Prolonged Feeding of Crude Ergot. A. A. Nelson, O. G. Fitzhugh, H. J. Morris and H. O. Calvery, Washington, D. C.-p. 11.

Increased Viscosity of Cells of Induced Tumors. M. F. Guyer and P. E. Claus, Madison, Wis .-- p. 16.

Effect of Radioactive Phosphorus on Viability of Mouse Sarcoma 180. K. Sugiura, New York .- p. 19.

Effect of Thorium Dioxide on Normal and Estrinized Tumor Bearing Rats. J. Heiman, New York.—p. 25.

Comparative Studies on Radiosensitivity of Normal and Malignant Cells in Culture: I. Effect of X-Rays on Cell Outgrowth in Cultures of Normal Rat Fibroblasts and Rat Benzpyrene Induced Sarcoma. L. Halberstaeder, G. Goldhaber and L. Doljanski, Jerusalem, Palestine. ---р. 28.

Behavior of Tumor Cells in Tissue Culture Subjected to Reduced Temperatures. M. E. Sano and L. W. Smith, Philadelphia.—p. 32.
Relationship of Endocrine System to Carcinogenesis. D. L. Smith,

J. A. Wells and F. E. D'Amour, Denver.—p. 40.

Fibromatogenic Action of Specific Urinary Estrogens (Metahormones)

in Guinea Pig. A. Lipschütz, R. Thibaut and L. Vargas Jr., Santiago, Chile,-p. 45.

Carcinogenic Effect of Estradiol and Theelin in Marsh Buffalo Mice. F. Bischoff, M. Louisa Long, J. J. Rupp and Georgena J. Clarke,

Santa Barbara, Calif.-p. 52. Homoiotransplantation of Spontaneous Tumors into Mice Bearing Spontaneous Tumors. H. T. Blumenthal, St. Louis. p. 56.
*Influence of Syphilis in Cancer of Cervix Uteri. W. G. Harding 2d,

Sydney, Australia.-p. 59.

Syphilis and Cancer of Cervix .- Harding states that among 227 consecutive charity patients with epithelioma of the cervix uteri 36 were syphilitic and 191 were free from syphilis. In the syphilitic women carcinoma developed at an average age of 47 years, as compared to 51 years in the nonsyphilitic women of the series. Among the nonsyphilitic women there was a higher percentage of grade 1 carcinoma, and they showed less extensive involvement than the women with syphilis.

## Connecticut State Medical Journal, Hartford 6:79-154 (Feb.) 1942

Gynecologic Problems of Childhood and Adolescence, A. H. Morse, New Haven .- p. 81.

The Problem Child. M. C. Pease, New York .- p. 86.

Convulsions in Children: Diagnostic Routine and Treatment. W. J. German, New Haven .- p. 88.

Contribution of Orthopedies to Early Treatment of Anterior Poliomye-Ritis. A. L. Shure, New Haven,—p. 91.
Craniopharyngioma: Tumor of Hypophysial Duct (Rathke's Cyst).

C. W. Perkins, Norwalk.—p. 94.
Choledochous Cyst: Case Report. A. J. Mendillo and W. B. Koufman,

New Haven .-- p. 99. The Law and Planned Parenthood: Case Report. M. C. Winternitz and

He Law and France Farentinoon, case report. M. C. Winternitz H. Bunting, New Haven.—p. 102. Calcified Cyst of Pericardium. F. E. Tracy, Middletown.—p. 103. Early Physicians of Windham County and Founding of Wind County Medical Association. R. L. Gilman, Storrs.—p. 107.

## Delaware State Medical Journal, Wilmington 14:1-18 (Jan.) 1942

Significance of Hematuria. W. H. Kinney, Philadelphia.-p. 2. *Observations on Kenny Treatment. G. J. Boines, Wilmington.-p. 11.

Kenny Treatment.-Since November 1941 Boines has used the Kenny method (passive and active movement and hot fomentation to relieve the spasticity of the affected muscles) for 16 patients with poliomyelitis. Five of the patients showed 100 per cent recovery within six weeks, 7 showed 90 per cent and 4 showed 75 per cent. Trained technicians are necessary to carry out the passive movements and the muscle reeducation exercises. The National Foundation for Infantile Paralysis has approved the Kenny method. It was clearly demonstrated in the author's 16 patients that no deformity, stiff joints or apparent muscular atrophy resulted. Even some long-standing uncomfortable deformities can be helped with the Kenny treatment. The bright, hopeful, cheerful effect of the treatment on the patient, parents and nursing attendants should not be overlooked. The day by day recovery of muscles is an inspiration to the nurse and to parents and promises a future recovery to the patient. The care of the patient with poliomyelitis as outlined by Sister Kenny consists in 70 per cent nursing care and medical supervision. Corrective and stabilizing operations are necessary when they are indicated. Another advantage of the treatment is that, if residual paralysis does result, the muscles are better preserved for reconstructive orthopedic surgery. The hot fomentations stimulate circulation and bring more leukocytes to the affected parts, which remove the toxins and virus from the

## Iowa State Medical Society Journal, Des Moines 32:1-52 (Jan.) 1942

Military Medicine in Its General Application. S. U. Marietta, Wash-

ington, D. C .- p. 1. reatment of Traumatic Incidents in Psychiatric Individuals. W. R. Hamsa, Omaha.—p. 7.
*Clinical Problem of Infectious Mononucleosis. J. E. McFarland, Ames.

Nonmalignant Lesions of Large Bowel. C. B. Meffert, Cedar Rapids. -p. 12. Surgical Treatment of Chronic Dacryocystitis. J. E. Reeder Jr., Sioux

City .--- p. 15. Actinic Therapy in Middle Ear Infections. F. J. Chapman, Keokuk.

-p. 20. Dislocation of Pelvis Without Fracture: Report of Case. D. N. Gibson,

Des Moines .- p. 23. 32:53-102 (Feb.) 1942

Surgical Treatment of Carcinoma of Lower Portion of Colon. C. W. Mayo, Rochester, Minn. p. 53.

Torsion of Gallbladder. E. D. McClean and H. G. Ellis, Des Moines.

-р. 56.

Vitamin B. Complex. W. H. Sehrell, Washington, D. C .- p. 60. Diagnosis and Treatment of Infections of Upper Urinary Tract. M. M. Benfer, Davenport.—p. 62.

Headache of Ocular Origin. R. J. Stephen, Cedar Rapids.—p. 66. Variations Between Oral and Rectal Temperature Readings. H. Stadler, Iowa City.—p. 70.

Pedunculated Lipoma. J. A. W. Johnson, Newton .- p. 71.

Infectious Mononucleosis .- McFarland states that to diagnose infectious mononucleosis early many conditions must be differentiated, and that when a patient has onset of fever, vomiting, pain and tenderness in the right lower quadrant of the abdomen and leukocytosis it is practically impossible to differentiate the disease from appendicitis. The author has performed appendectomy on 3 children who proved to have enlarged mesenteric nodes but not appendicitis and in whom the typical picture of mononucleosis developed later. However, more recently 1 of his patients had to have an appendical abscess drained. He suggests that perhaps mesenteric lymphadenitis is frequently if not always infectious mononucleosis. The prolonged convalescence in mesenteric lymphadenitis fits well with that of mononucleosis. An early blood smear showing only polymorphonuclear leukocytes, an elevation of the temperature higher than that usually seen in appendicitis, pain out of proportion to the tenderness and rigidity, and vomiting out of proportion to all three should suggest mononucleosis. Other notes are likely to be enlarged, and granular pharyngitis will nearly always be present. Other members of the patient's family may later show more readily identified stages of the disease. How-

ever, in spite of all this it is still unsafe to postpone operation, but with more surgeons on the lookout it may be possible to prove or disprove the identity of any of the diseases mentioned and to make a satisfactory preoperative diagnosis.

## Journal of Allergy, St. Louis 13:105-214 (Jan.) 1942

Effect of Wide Variations in Potassium and Sodium Intake in Asthmatic Children, G F. Harsh and P. B Donovan, San Diego, Calif —p 105.

Immunologic Response of Allergic Children to Toxoid. T. B. Friedman, J. A Bigler and Marie A. Werner, Chicago —p. 114. G. L.

Estrogenic Hormone Determinations in Premenstrual Asthma Waldbott and L J. Bailey, Detroit,-p. 125.

Extraction of Ragweed Pollen as Observed with Ultramicroscope E A

Brown, London, England, and N. Benotti, Boston —p 144
Studies on Immunology of Ragweed Pollen Proteins. II. Anaphylactic
Experiments M Mosko, R. Hecht and H. Weil, Chicago —p 149.
Relationship of Maternal Diet to Intrauterine Sensitization. B Zohn,

Brooklyn — p 153

*Prophylactic Oral Therapy Against Poison Ivy. H Gold and P. Masucci, Chester, Pa.—p 157.

Cercal Free Elimination Diets and Soybean Emulsion for Study and Control of Infantile Eczema. A. H. Rowe and C. L. Mauser, Oakland, Calif .- p 166.

Oral Therapy Against Ivy Poisoning.-Gold and Masucci studied the prophylactic effect of oral therapy against ivy poisoning in 20 subjects known to be susceptible. Treatment consisted in having the patient swallow tablets containing 05, 2, 5 or 10 mg. of poison ivy oleoresin after the noon meal. The initial dose was one half or one 0.5 mg. tablet. Treatment was given daily unless severe reactions occurred, when it was given every other day or at longer intervals. The dose was increased according to the patient's tolerance. The maximal dose, fifteen 10 mg. tablets, was reached by all but 1 patient, who took 500 mg. a day without untoward effects. After treatment, vesicles and pruritus following field tests, which were more severe than normal accidental exposure, were absent in 17 and present in 3 subjects. These observations confirm those of Shelmire that previous attempts at immunization by subcutaneous injection failed because the extracts used were not potent and the dose was inadequate. The largest amount that other investigators were able to inject was 05 cc. of a 1:50 solution, and this invariably produced severe local reactions. The value of oral desensitization is obvious, and the danger of contact dermatitis from handling and swallowing the liquid preparation as advised by Shelmire is removed. The tablets have retained their potency for two and five-tenths years. Large, well controlled clinical trials of the prophylactic measure should be done to determine its true usefulness.

## Journal of Bone and Joint Surgery, Boston 24:1-244 (Jan.) 1942. Partial Index

Surgery of Intrinsic Muscles of Hand Other Than Those Producing Opposition of Thumb S Bunnell, San Francisco -p 1.

Influence of Estrogens on Shape of Long Bones. J. L. Bremer, Boston.

Calcification and Ossification III. Role of Local Transfer of Bone Salt in Calcification of Fracture Callus M R Urist, Baltimore.

*Chinical Significance of Certain Microscopic Changes in Muscles of Anterior Poliomyelitis. H. E. Hipps, Marlin, Texas—p. 68.
Use of Piecerved Bone Graft in Orthopedic Surgery. A. Inclan, Havana, Cuba -p. 81.

Valgus Deformity of Knee Resulting from Injury to Lower Femoral Epiphysis L C Abbott and G G Gill, Snn Francisco—p. 97.

Calcareous Tendinitis in Metacarpophalangeal Region W. Cooper,

Brooklyn -114 -p Treatment of Coxitis D V. Marshall, Hull, England -p 169.
March Fracture of Femur. Report of Case. L. T. Peterson, Wash-

ington, D. C-p 185
Scittle Pain. Its Significance in Diagnosis of Cauda Equina Tumors: Report of Four Cases A Kaplan, M. B. Bender and M Sapirstein, New York -p 193.

Microscopic Changes of Muscles in Poliomyelitis .-Hipps studied at operation the muscles of patients who had had anterior poliomyelitis for two years or more. The patients were often given physical therapy for varying periods of time before some necessary standard operation was performed. The incision, however, was lengthened enough so that the muscle was visualized fully. Sections for microscopic study were removed from the most damaged part of each muscle. The microscopic evidence suggests that a gain in strength by a partially paralyzed muscle occurs not through the formation of

new fibers but through an overdevelopment or hypertrophy of the remaining undamaged cells. Pathologic changes are brought about primarily through denervation and secondarily from abnormal variations of tension in the muscle. The cellular changes from denervation begin with atrophy and progress to degeneration, disintegration and replacement changes. These pathologic stages due to secondary factors occur in muscle cells in the same way. Too much tension or overstretching results in minute tears, zonal degeneration and subsequent fibrosis, while too little tension produces changes identical with those produced by denervation. The secondary abnormalities may produce just as much weakness as the primary denervative changes. Secondary changes following immobility and disuse appear more severe than those following overactivity. Nothing much can be done for muscle cells which have lost their motor neurons and have regressed or are regressing. The knowledge that secondary changes do occur should be of practical value in planning preventive treatment.

#### Journal of Experimental Medicine, New York 75:135-246 (Feb.) 1942

Quantitative Experiments with Antibodies to Specific Precipitate: III.

Antigenic Properties of Horse Serum Fractions Isolated by Electrophoresis and by Ultracentrifugation. H. P. Treffers, D. H. Moore and M. Heidelberger, New York—p. 135.

LS Antigen of Vaccinia: I. Inhibition of L and S Antibodies by Substances in Treated Vaccine Dermal Filtrate. J. E. Smadel and T. M. Rivers, New York.—p. 151.

Id: II. Isolation of Single Substance Containing Both L and S Activity. T. Shedlovsky and J. F. Smadel, New York—p. 166.

Activity. T. Shedlovsky and J. E. Smadel, New York—p. 165.

Effect of Various Diets on Liver Damage Caused by Excess Cystine.

D. P. Earle Jr. and J. Victor, New York—p. 179.

Liver Damage and Urinary Excretion of Sulfate in Rats Fed I Cystine,

dl-Methionine and Cysteic Acid. D. P. Earle Jr. and F. E. Kendall,

New York -p. 191.

Cell State as Affecting Susceptibility to Virus Enhanced Effectiveness of Rabbit Papilloma Virus on Hyperplastic Epidermis. W. F. Friedewald, New York -p. 197.

Friedwald, New York—P. 197.

Red Cell and Plasma Volumes (Circulating and Total) as Determined by Radio Iron and by Dye. P. F. Hahn, J. F. Ross, W. F. Bale, W. M. Balfour and G. H. Whipple, Rochester, N. Y.—p. 221.

Influence of Age on Susceptibility of Mice to St. Louis Encephalitis Virus and on Distribution of Lesions. J. L. O'Leary, Margaret G. Smith and H. R. Reames, St. Louis.—p. 233.

#### Journal of Lab. and Clinical Medicine, St. Louis 27:419-568 (Jan ) 1942. Partial Index

Systemic Histoplasmosis Diagnosed Before Death and Produced Experimentally in Guinea Pigs. J D. Reid, J. H. Scherer, P. A. Herbut and H. Irving, Richmond, Va — p. 419.
Pathology of Atrophic Arthritis: Correlated Clinical and Laboratory Study. C. L. Steinberg, Rochester, N. Y.—p. 435.
Sodium Sulfapyridine Monohydrate Intravenously in Treatment of Lobar Programma, A. Leutt. H. T. Schwatzer and K. Caldeton, P. C. 1.

A Levitt, H. T. Schweitzer and K. Goldstein, Buffalo. -р. 443

Average Length of Life of Red Corpuscle. Dona Gayler Graam, Terro

*Effect of Lowered Temperatures on Growth of Tibroblast in Vitro Its Application to Wound Healing. M. E. Sano and L. W. Smith, Phila-

Application to Wound Heating. Al. E. Sano and E. W. Smith, Finnadelphia — p. 460.

Unusual P Wave in Chest Lead CF₂ Following Spontaneous Pneumothorax. S D. Burton and J. S. Mehlman, Chicago — p. 465.

Plasma Albumin, Globulin and Fibrinogen in Health; Individuals from
Birth to Adulthood. II. "Normal" Values Virginia Trevorrow,
Margaret Kaser, Jean Paton Patterson and R. M. Hill, Denver —

2. 471

Use of Dihydrotachysterol in Parathyroprivic Tetany: Report of Case. F. E. Harding, Los Angeles -p. 497.

Comparative Physiologic Value of Injected Carotene and Vitamin A.

June G Lease, E J Lease, H. Steenboch and C. A. Baumann, Madison, Wis-p 502.

Oral Ascorbic Acid Tolerance Test and Its Application to Senile and Schizophrenic Patients E. Stotz, B. M. Shinners and R. A Chit-

tick, Boston -p 518

*Effect of Yeast and Muscle Adenylic Acid in Malnourished Persons with Pellagra and Peripheral Neuritis. R. W. Vilter, W. B. Bean and T. D Spies, Cincinnati -p. 527.

Growth of Fibroblast in Vitro .- Sano and Smith observed the behavior of the fibroblast in tissue culture at temperatures varying from 32 to 986 F., and on the basis of their observations they suggest that hypothermy be used more widely in wound healing. The reduction of temperature to between 77 and 86 F. gives optimal conditions for satisfactory wound healing: the cells grow vigorously, they pack closely and the circulation is slowed. Thus the products of metabolism are and remain in close contact with the cells, as the slowed blood stream is unable to carry them away. In addition the lowered temperature is somewhat bacteriostatic and aids materially in checking infection. Finally, if epithelization is accomplished too rapidly the underlying granulation tissue tends to undergo regressive changes, the collagen contracts and a depressed secondarily contracted scar results, but if the process of repair is slowed the connective tissue is adequate in amount and compactly arranged, with relatively little collagen, and the final scar is minimal, with little or no retraction. The application of hypothermy in plastic surgery, in preventing the formation of keloid and in clearing up old lesions from osteomyelitis is a field to be investigated.

Adenylic Acid for Malnourished Persons .- Vilter and his co-workers point out that the role of adenylic acid in human nutrition is important and extremely diversified. Two to five days after daily intravenous injections of 50 mg. of adenylic acid from yeast or from muscle, ulcers in the mouths of 6 malnourished persons disappeared. In contrast, ulceration in the mouths of 3 persons with stomatitis but with no evidence of a dietary deficiency did not improve. Therapy with yeast or muscle adenylic acid to persons with pellagrous glossitis or subclinical symptoms of pellagra caused rapid improvement in strength and well-being and the disappearance of the burning sensation of the mucous membranes. Giving yeast adenylic acid to 6 persons with peripheral neuritis who obtained no benefit from brewers' yeast or thiamine hydrochloride brought about spontaneous relief from pain and hyperesthesia; the perception of light touch improved, and the patients were able to walk without pain. Because the therapy produced immediate reactions and concomitant electrocardiographic changes the authors do not recommend adenylic acid for general therapeutic use. Nicotinic acid, thiamine hydrochloride and a diet rich in protein and calories continue to be the most efficient therapeutic agents for most malnourished persons with ulcerative stomatitis and peripheral neuritis.

## Journal of Urology, Baltimore

47:1-58 (Jan.) 1942

Treatment of Wilms' Tumor. J. T. Priestley and T. L. Schulte. Rochester, Minn .- p. 7.

Sulfacetimide or Sulfamyd (Schering): Clinical Study of Efficiency and Toxicity in Urinary Tract Infections and Comparison with Sulfamilamide Therapy. R. J. Prentiss and J. F. Kanenly, Iowa City.

Prostatic Obstruction in Young Adults: Report of Five Cases. H. A. Fowler, Washington, D. C.-p. 16.

Physiology of Testis and Application of Male Sex Hormone. C. R. Moore, Chicago.—p. 31.

Significance of Randall's Papillary Lesions in Causation of Renal Calculi, K. T. Kjølhede and H. K. Lassen, Copenhagen, Denmark.—p. 45.

## Kansas Medical Society Journal, Topeka 43:1-44 (Jan.) 1942

Prevention and Control of Surgical Infections in General Hospital. S. L. Koch, Chicago .- p. 1.

Recognition and Treatment of Curable Diseases of Heart. M. Snyder.

Salina.-p. 6. Chronic Nephritis and Hypertension-Clinical Aspects. H. N. Tihen, Wichita .- p. 11.

## Laryngoscope, St. Louis

52:1-82 (Jan.) 1942

Review of Articles on Tuberculosis in Field of Otolaryngology Chiefly for Late 1940 and Early 1941. F. R. Spencer, Boulder, Colo.—p. 1. Cancer of Paranasal Sinuses. W. L. Watson, New York.—p. 22. Congenital Webs of Larynx. H. E. McHugh, Montreal, Canada, and W. E. Loch, Baltimore.—p. 43. Cough. M. S. Lloyd, New York.—p. 66. The "Blocked Ear" of the Caisson Worker. R. Almour, New York.—p. 75.

**—**р. 75.

## Laval Médical, Quebec

## 7:1-74 (Jan.) 1942. Partial Index

Grave Ulcerative Colitis. J. P. Dugal, Quebec, Canada.—p. 11.

*Treatment of Congenital Clubfoot (from Birth to Four Years of Age).

L. P. Roy, Quebec, Canada.—p. 16.
Metrazol and Epilepsy. G. H. LaRue and A. Pelletier, Quebec, Canada.

**—**р. 22. Treatment of Congenital Clubfoot.-Roy discusses the incidence, sex distribution, hereditary character and various types of clubfoot. Ombredanne divides the evolution of talipes into three periods: 1. The period of complete reducibility, dur-

ing which reduction can be accomplished by hand and without violence; this is possible up to the age of 15 days or even a year. 2. The period of relative irreducibility, during which osseous reposition is hindered by ligamentous, tendinous or cutaneous retractions but during which it is possible to remove these obstacles; this is the period between 2 and 4 years. 3. The period of absolute irreducibility, which ensues after the age of 4 years. The prognosis of congenital talipes varies with age, degree of deformity and rigidity, treatment and the period during which the child is observed, because relapse is possible even in a well reduced clubfoot. Early redressement is now almost universally applied. Some surgeons wait until the child is about a year old to perform instrumental redressement. The author thinks that early and mild manual redressement is infinitely better than the brutal manipulations and that treatment should begin when the child is 8 days old. The first deformities to be corrected are the adduction and the supination. While one hand grasps the heel, the other holds the anterior portion of the foot, and abduction is effected. Thus the internal edge tends to become convex and the external edge concave. Against supination one hand grasps the region of the ankle while the other holds the foot and turns it in order to lower the internal and raise the external border. It is necessary to respect the equinism in order to correct the first two deformities; this makes a more solid support. Up to the age of 2 or 3 months these maneuvers can be made without anesthesia; after that a little anesthetic should be given. It is better to correct a clubfoot in several sessions at intervals of several weeks than to make a redressement forcé all at once. Fixation is even more important than reduction. In the newborn, even up to 1 month, the author employs elastoplast, but some workers employ plaster of paris. If a child between 12 and 18 months of age, even perhaps up to 2 years, is brought to the physician a somewhat forced manual redressement is necessary under general anesthesia, which in about 80 per cent of the cases must be accompanied by tenotomy of the achilles tendon. A plaster of paris boot is put on for six to eight weeks and may have to be replaced later. The treatment of the period of relative irreducibility, that is, of the age between 2 and 4 years, consists in forced manual redressement followed by use of a plaster cast for two months; tenotomies of the internal lateral section are often necessary.

## Missouri State Medical Assn. Journal, St. Louis 39:1-28 (Jan.) 1942

Ovarian Hormones and Their Clinical Uses. W. M. Allen, St. Louis--p. 1.

Spontaneous Interstitial Mediastinal Emphysema: Report of Case. J. P.

Murphy and L. B. Zeis, St. Louis.—p. 5.
Foot Conditions. M. B. Roche, St. Louis.—p. 7.
Congenital Duodenal Obstruction. A. D. Vail and E. J. Schwartt. Springfield .- p. 12.

39:29-64 (Feb.) 1942

Sarcoidosis: Report of Two Cases with Pulmonary Involvement, H. L. Spector, St. Louis .- p. 29.

*Prophylaxis in Epidemic Influenza. S. E. Sulkin and J. C. Edwards, St. Louis .- p. 33.

Abnormal Mental Reactions of Old Age. G. W. Robinson Jr., Kanth City .-- p. 36.

Acute Appendicitis: Present Day Concepts of Treatment. E. V. Martin.

St. Louis.—p. 41.

Thyroidectomy: Study of 200 Consecutive Cases. P. F. Stooker and M. R. Bay, Kansas City.—p. 43.

Effect of Mineral Water on Kidney Function Tests. R. O. Muether. G. T. Flynn and R. A. Mezera, St. Louis.—p. 45.

Stag Horn Calculus Removal by V Shaped Nephrotomy. L. H. Poliki.

Kansas City.—p. 48.

Vesical Neck Obstruction: Result of Twelve Years' Study of Care Encountered in Country Practice. G. W. Gay, Ironton.—p. 51.

Convulsive Shock Therapy Induced by Electricity. P. Shelton, Karalas

City .-- p. 53.

Prophylaxis in Epidemic Influenza.-Sulkin and Edwards state that the prophylaxis of epidemic influenza in animals and human beings with the complex vaccine containing influenza A and distemper virus, while not entirely effective, produce immunizing antibodies. The neutralizing antibodies that result from the administration of the vaccine persist for six months. Although many instances of influenza occurred in the institutions in which the authors' clinical experiments were carried ord. the disease did not develop in any of the vaccinated person-

Effect of Mineral Water on Tests of Renal Function. -Muether and his associates determined the effect of a particular mineral water on renal function. Of 16 patients with a urea clearance of 50 or more per cent of normal when they used tap water, 12 showed an increased urea clearance after four days of taking the mineral water and 4 showed a definite decrease Of 9 patients whose urea clearance with tap water was less than 50 per cent of normal, 7 showed an increased and 2 a decreased ability to clear urea after using the mineral water Twenty-four tests for the total output of phenolsulfonphthalein were done on 21 patients who had less than a 50 per cent output when they used tap water. The use of the mineral water improved the phenolsulfonphthalein excretion in twentyone, or 875 per cent, of the tests The phenolsulfonphthalem excretion of only 3 patients was lower after the use of the mmeral water than it was with tap water. Twelve of fifteen tests on 13 patients who had a phenolsulfonphthalein excretion of more than 50 per cent with tap water showed an increased output when mineral water was used. The apparent effectiveness of the mineral water to improve the renal excretion of certain substances warrants further investigation

#### Nebraska State Medical Journal, Lincoln 27:41-76 (Γeb ) 1942

Practical Considerations in Present Day Chemotherapy A E Brown and W. E. Herrell, Rochester, Minn-p 41 Chemotherapy in Acute Communicable Diseases E S Wegner, Lincoln ---- 47

Chemotherapy in Otitis Media and Mastoiditis P N Morrow, Omaha-

Chemotheraps in Upper Respiratory Infections, with Special Reference to Throat G C O Neil, Omaha—p 55

Ophthalman in Newborn W H Morrison, Omaha—p 58

Sequela of Knee Ligament Strain Pellegrim Stieda's Disease (Metacond) lar Traumatic Osteoma) W. R Hamsa, Omaha—p 62

Acute Peritonatis—Preoperative Immunization with Amfetin F J Murray, Omaha -p 65

## New England Journal of Medicine, Boston

226:1-36 (Jan 1) 1942

Blast and Concussion in the Present War J F Fulton, New Haven, Conn -- p 1

Enterococcic Endocarditis Report of Two Cases D Skinner and J E Edwards, Boston -p 8

Left Ingunal Herma with Acute Meckel's Diverticulitis and Peritonitis
Report of Case R Lium and S T I add, Portsmouth, N H--p 15
Irradiation in Treatment of Cancer of Breast T W O Brien and Irradiation in Treatment of Cancer of Breast O Brien and E McDonald, Boston -p 17

Medical Aspects of Obstetrics J A Smith, Boston -p 21

#### 226:37-80 (Jan 8) 1942

Middlesex South and Massachusetts Medicine H G Giddings, Newton Centre, Mass -- p 37

Centre, Mass—p 37

*Hyperactive Cardionhibitory Carotid Sinus Reflex as Aid in Diagno is of Coronary Disease. Its Value Compared with That of Electro cardiogram. L. H. Sigler, Brooklyn—p 46

*Treatment of Angina Pectoris with Testosterone Propionate inary Report. M. A. Lesser, Boston—p 51

Use of Aspirating Needle in Diagnosis of Solitary Renal Cyst. B. C. Wheeler, Worcester, Mass—p 55

Abdominal Surgery. A. W. Allen, Boston—p 57

Carotid Sinus Reflex .- Sigler determined the relative fiequency of the cardioinhibitory carotid sinus reflex and of abnormalities in the electrocardiogram of 1,073 patients with coronary disease. Observations show that the hyperactive cardioinhibitory carotid sinus reflex occurs more frequently in the disease than do abnormalities in the electrocardiogram. Therefore the test may perhaps be considered of more diagnostic value than the electrocardiogram in recognition of the disease However, like any other test or method of examination, use of the reflex has its shortcomings and pitfalls The reflex does occur in disorders other than coronary disease, and it may be absent in coronary disease. It may perhaps be considered a definite sign in coronary disease if it occurs as an independent phenomenon unassociated with other reflexes of the carotid sinus group, such as a definite fall in blood pressure dizziness, sensory disturbances and syncope, if it occurs as the principal manifestation of the sinus reflex and it it appears after comparatively elight pressure on the carotid sinus region and no other vagal disturbance occurs. Under such circumstances the selective augmentation of the induced vagal impulse is in the cardine ganglions rather than in the ganglions of vagal centers in the medulia. If such augmentation occurred in the medullary centers, it would conceivably affect the entire vagal system Of the 784 men in the series 913 per cent and of the 289 women 726 per cent showed the cardioinhibitory response, whereas the electrocardiograms of only 63 per cent of the men and 719 per cent of the women showed abnormalities. The explanation for the frequency of the hyperactive reflex in coronary disease is at present purely theoretical. It may be due to local cardiac ischemia which lowers the resistance in the vagal ganglions and in the myoneural junctions or which produces some chemical changes that sensitize the vagus nerves locally

Testosterone Propionate Therapy of Angina Pectoris. -Lesser reports that 20 men and 4 women from 40 to 77 years of age with an established diagnosis of angina pectoris were treated with testosterone propionate. The drug was administered intramuscularly every second to fifth day in 25 mg doses for a total of five to twenty-five injections, with an average of eleven injections. The frequency, severity and duration of attacks were diminished in all patients, and the patients have been able to increase considerably their physical activity without precipitating an attack. The beneficial effects persisted for two to twelve months after treatment was withdrawn. The improvement in men was much greater than that in women, No improvement followed control injections of sesame oil, although the control patients responded when given testosterone propionate therapy Untoward effects were not observed Fluoroscopic examinations, serial hymograms and electrocardiograms revealed no uniform result from the therapy terone propionate may be a valuable drug in the treatment of angina pectoris, and the results warrant further investigation.

## New Jersey Medical Society Journal, Trenton 39:1-56 (Jan) 1942

The Doctor in the Army R A Kilduffe, Atlantic City —p 5
The Hospital in Civilian Defense H van Z Hyde, New York —p 12
Erythremic Response to Liver Therapy in Treatment of Permicious
Anemia P B Ferrary Totowa —p 19
Anorectal Pain, Its Causes and Treatment J Gerendasy, Elizabeth.

~p 21

Differential Diagnosis Between Acute Diseases of Chest and of Abdomen, G P Muller, Philadelphia —p 27

Differential Disgnosis in Peripheral Vascular Disease F C Dinge, East Orange—p 30

#### New Orleans Medical and Surgical Journal 94:311-360 (Jan ) 1942

Development of Legal Psychiatry in Louisiana R C Young, Coving-

ton, La-p 311
Status of Psychiatry in Louisiana H R Unsworth, New Orleans. -р 318

Spastic Colitis in Infancy and Childhood C J Bloom New Orleans.

-- p 322
*Vitamin Stilbestrol in Treatment of Hypo Ovarianism W H Byrne,
J C Weed B B Weinstein and C G Collins New Orleans—p 330
Anlagen and 'Rest' Tumors of Lung Their Protean Histologic Patterns in Bronchiogenic Neoplasia W H Harris and H J Schatten

Aningen and Rest Lumors of Lung Linear Frontier Instruction of terms in Bronchiogenic Neoplasm W H Harris and H J Schatten berg, New Orleans—p 333

*Report on Recently Observed Cases of Weil's Disease C J Wilen, J R Snavely and F E Bruno New Orleans—p 338

Weil's Disease (Spirocheral Jaundice) Report of Case J A Durand,

Baton Rouge, Lip—p 341
Oral Administration of Mercurial Diuretic in Treatment of Congestive
Heart Failure K L Dickens, New Orleans—p 344

Diethylstilbestrol for Hypo-Ovarianism -Byrne and his associates state that the addition of vitamin complexes to dicthylstilbestrol given to 35 patients with physiologic ovarian failure and to 12 with ovarian deficiency resulting from surgical procedures did not minimize the incidence of nausea occasioned by diethylstilbestrol alone

Weil's Disease -Wilen and his coworkers point out that during August and September 1941 a diagnosis of Weil's disease was made on 4 male patients at the Charity Hospital All 4 patients had chills, a sudden onset with fever, prostration, muscular aching pains, jaundice and leukocytosis with a white cell count not exceeding 15 000. An interesting feature in the history of 2 of the patients was the fact that they were neighbors and that there were jaundiced cattle in the immediate vicinity of their homes. The serum of one of these cows failed to agglutinate Leptospira icterohemorrhagine and Leptospira canicola, and inoculations into guinca pigs with blood from this

cow proved negative. However, the owner of the cow and one of his employees gave a history of a recent severe illness of ten days with a sudden onset associated with fever, prostration, smoky urine and questionable jaundice. Laboratory studies were negative for Leptospira icterohemorrhagiae.

## New York State Journal of Medicine, New York 42:97-192 (Jan. 15) 1942

Present Status of Therapeutic Regional Analgesia. E. A. Rovenstine and H. M. Wertheim, New York .-- p. 123.

Ophthalmoscopic Findings versus Sinusitis. A. I. Bedell, Albany, -р. 128.

*Dissemination of Tubercle Bacilli from Fresh Autopsy Material. R. A. Sloan, Buffalo .- p. 133.

Rectocele: Constant Lesion Frequently Overlooked in Standard Repairs. J. W. Davies, New York,-p. 135.

Problem of Pruritus Vulvae. J. E. King, Buffalo .- p. 140.

Chronic Hypertrophic Osteoarthritis in Cervical Spine with Radiculitis: Report of Forty Cases with Review of Literature, Together with Some Notes on Effective Methods of Treatment-Part I. L. C. Kelly, New York .-- p. 144.

Dissemination of Tubercle Bacilli from Fresh Necropsy Material.—In trying to determine the validity of the statement that fresh necropsy material is relatively innocuous as a contaminent of air, Sloan made a glass-enclosed elevating shield and placed it 8 inches (20 cm.) above the pulmonary specimens to be examined from 10 patients who had died from tuberculosis. Necessary precautions were taken before and during the examination so that all drafts from fans and open windows were eliminated. He observed that necropsy methods which make use of a compression technic contaminate the atmosphere in the immediate vicinity. Within the limitations of his study, fresh tuberculous lungs are definitely dangerous and are a potent source of atmospheric contamination. Proper methods of protection should be devised.

## North Carolina Medical Journal, Winston-Salem 3:1-52 (Jan.) 1942

Medical Management of Bleeding Gastric and Duodenal Ulcer, C. G. Reid, Charlotte .- p. 1.

Cesarean Section: Its Incidence and Fetal Mortality in Some Cities in North Carolina. C. H. Mauzy, Winston-Salem.—p. 5. Public Health Problems Created in Flood Disasters. R. F. Young,

Halifax.—p. 8. Intranasal Tumors. B. E. Ellis, Indianapolis.—p. 12.

Recurrent Urolithiasis. G. A. Hawes, Charlotte .-- p. 16.

Present Status of Male Sex Hormone. F. K. Garvey, Winston-Salem. ---р. 22.

*Some Features of "Virus Pneumonia." J. Moss, Durham .- p. 27. Occupational Dermatoses. P. G. Reque and P. L. Williams, Durham.

Combination of Clavicular Cross and Figure of Eight Dressing in Treating Fractures of Clavicle. W. E. Miller, Whiteville .- p. 33.

Virus Pneumonia.-Moss reports 3 cases of probable "virus pneumonia." The onset was characterized by a harassing, at times paroxysmal, cough, which was nonproductive or productive of only a small amount of mucopurulent sputum. There was no pleurisy. Bacteriologic studies failed to demonstrate the etiologic organism. Repeated leukocyte counts were normal or only slightly elevated. The temperature was rather high during the first few days of the disease, and there was a relative bradycardia until the temperature fell by lysis on the fifth to the seventh day. Two of the 3 patients showed no physical sign of pneumonia until the lesion was revealed in a roentgenogram. Physical signs, when present, were those of incomplete consolidation. The disease was refractory to sulfonamide therapy. Although deaths from "virus pneumonia" have been reported, the disease is relatively benign. It is highly communicable (the author's patients comprised the original patient and his two nurses).

## Public Health Reports, Washington, D. C. 57:33-64 (Jan. 9) 1942

Sanitation and Bacteriology of Public Eating Utensils: Investigation of Public Eating and Drinking Establishments in Providence, R. L. M. P. Horwood and P. J. Pesare, -p. 33.
Antitularemic Serum. E. Francis and L. D. Felton, -p. 44.

## Southern Medical Journal, Birmingham, Ala. 35:1-122 (Jan.) 1942. Partial Index

Ureterointestinal Implantation: Experimental and Clinical Results with New Method. H. J. Jewett, Baltimore.—p. 1.

Intracranial Vascular Accidents: Medical or Surgical. R. M. Klemme, St. Louis .- p. 11.

Procaine Hydrochloride Infiltration in Obstetrics. W. Bickers, Richmond, Va.-p. 17.

Anuria, Occurring During Latter Part of Pregnancy or Following Labor, C. E. Gaupin, Louisville, Ky .- p. 21.

Perforation of Aspirated Cedar Leaf Through Chest Wall. F. H. Bowen, Jacksonville, Fla. p. 24.

*Use of Various Sulfanilic Acid Derivatives in Trachoma. K. W. Cosgrove and L. K. Hundley, Little Rock, Ark.—p. 43.
Sulfaguanidine in Treatment of Bacillary Dysentery. Lydia B. Edwards,

Baltimore .- p. 48.

Use of Sulfonamides in Clean Operative Wounds. J. A. Key, St. Louis. -p. 55.

Boric Acid. H. King, Nashville, Tenn.-p. 59.

Some Gynecologic Uses of Chemotherapy. J. L. McKelvey, Minne-

apolis.—p. 62.

Syphilis Among Selective Service Registrants in a Southern County.

A. J. Perley, Lafayette, Ala.—p. 65.

S. Bulancary Tuberculosis. R. G. Giles

Rochtgen Rays in Diagnosis of Pulmonary Tuberculosis. R. G. Giles and C. J. Koerth, San Antonio, Texas.—p. 70.

Sinusitis in Children. J. J. Shea, Memphis, Tenn.—p. 74.

Tomorrow's Children.—Our Responsibility Today. W. W. Quillian,

Coral Gables, Fla.-p. 77.

The Psychiatrist Looks at War. D. C. Wilson, Charlottesville, Vap. 79.

Sulfanilic Acid Derivatives for Trachoma.—Cosgrove and Hundley state that 1,866 patients from the Arkansas Trachoma Service have been given various sulfanilic acid derivatives. The trachoma of 402 (21.5 per cent) was improved, that of 1,359 (73 per cent) was arrested and that of 105 (5.5 per cent) was not improved. The visual impairment of 74.7 per cent of the patients was arrested, that of 19.9 per cent was improved and that of 5.4 per cent was not improved. The improvement in vision has been from 5 to 80 per cent. As 8.7 per cent of the patients have complications which require surgical intervention and 3.5 per cent have been observed for less than three months, the total in which trachoma can be arrested is near 90 per cent. The results show that a sufficient dose of any one of the sulfonamides is equally effective An average of 1.85 mg. per hundred cubic centimeters of free sulfanilamide in the blood is required to arrest trachoma. Oral administration, supplemented by local application, permits the use of smaller doses. Ambulatory treatment is possible, and there is no danger of serious reactions.

## Surgery, Gynecology and Obstetrics, Chicago 74:1-128 (Jan.) 1942

*Erythroblastosis Neonatorum: Obstetric-Pathologic Study of Forty-Seven Cases. C. T. Javert, New York.—p. 1.

Treatment of Fresh Traumatic and Contaminated Surgical Wounds.

J. D. Bisgard and C. P. Baker, Omaha.—p. 20.

Study of Mechanics of Bile Flow: I. Responses to Physiologic Intravenous Solutions. D. D. Kozoll and H. Necheles, Chicago.—p. 27.

*Clinical Studies on Antihemorrhagic Effects of New Water Soluble Vitamin K-like Substance. M. Davison, F. Steigmann and H. L. Udesky, Chicago.—p. 35.

Bacteremic Staphylococcic Infection. C. Lvons. Boston.—p. 41.

Bacteremic Staphylococcic Infection. C. Lyons, Boston.-p. 41. Carcinoma of Esophagus: Torek's Operation, Recovery. O. Ivanissevich

and R. C. Ferrari, Buenos Aires, Argentina.—p. 47.
*Lung Injury Due to Detonation of High Explosive, J. D. King and G. M. Curtis, Columbus, Ohio.—p. 53.

Caudal Anesthesia: Its Use in Obstetrics. A. H. Lahmann and A. C. Mietus, Milwaukee.—p. 63.
Putrid Empyema. H. C. Maier, New York, and E. J. Grace, Brosklyn.

-р. 69.

Mammary Carcinoma: Review of 2,636 Cases. I. Macdonald, Los Angeles,-p. 75.

Angeles.—p. 75.
Carcinoma of Colon and Rectum: Study of Metastasis and Recurrences.
C. W. Mayo and C. P. Schlicke, Rochester, Minn.—p. 83.
Artificial Ileocecal Valve. J. A. Glassman, Chicago.—p. 92.
Treatment of Obstructive Hydrocephalus in Adults. J. C. White 3rd
I. I. Wichelsen, Parter.

J. J. Michelsen, Boston.—p. 99.

Fine Alloy Steel Wire Sutures: Experimental and Clinical Study, Y. K. Wu and H. C. Pai, Peiping, China.—p. 110.

Peritoneal Aspiration in Diagnosis of Strangulated Bowel. T. C. Hill.

B. J. O'Loughlin and M. Stoner, Omaha.—p. 121.

Edema of Pancreas. H. L. Popper and H. Necheles, Chicago.—p. 121.

Neonatal Erythroblastosis. - Javert separates neonatal erythroblastosis into hydropic, icteric, anemic, hemorrhagic and unclassified types. In his series of cases the total incidence of erythroblastosis was 1:438 and the fetal mortality caused by the disease was 3.2 per cent. Of the mothers 92 per cent were multiparous. A high incidence of preeclamptic toxemia existed among the mothers of hydropic and icteric infants. Excessive uterine enlargement was due to the weight of the infant and the placenta and not to the hydramnios. The hydronic infants were born a month or more prematurely, whereas the icteric infants were born nearer term. Asphyxia within the uterus, after birth or during neonatal life was a prominent symptom of the fetus. Therefore, if erythroblastosis is suspected all prepartum analgesia and anesthesia is interdicted. Local infiltration can be used for an episiotomy. The incidence of postpartum hemorrhage was increased, particularly among mothers of hydropic infants. The incidence of operative delivery because of fetal distress was 56 per cent. The patient's obstetric history should replace the "family history," as the disease is not strictly familial. Parity is important, as the incidence of erythroblastosis after its initial appearance is approximately 50 per cent. If the first born had the disease, the subsequent incidence is nearly 100 per cent. Studies of the maternal blood usually gave normal results except for an increased icteric index and uric acid. The serum proteins were generally reduced. Several of the mothers were Rh negative. The infants had a high incidence of congenital anomalies. The increased number and ratio of the erythroblasts and the normoblasts in the cord blood are important diagnostic criteria. The immediate treatment of erythroblastosis is to combat asphyxia. The mortality for the hydropic infants was 100 per cent, for the icteric 54 per cent. The Buddha-like habitus of the fetus in utero seen on roentgen study is an important diagnostic feature. Paternal studies revealed that the fathers were Rh positive. The probable pathogenesis of erythroblastosis is hepatic dysfunction. Erythroblastosis runs part of its course in utero, and the obstetrician and the pediatrician are in a strategic position for antepartum diagnosis.

Antihemorrhagic Effects of Vitamin K-like Substance. -Davison and his co-workers discuss their experience with the new water soluble vitamin K-like preparation the tetra sodium salt of 2-methyl-1, 4-naphthohydroquinone diphosphoric acid ester, or preparation N-123, in 41 patients. Most of the patients had disease of the biliary tract or the liver associated with jaundice, and a few had gastrointestinal disturbances or severe sepsis conducive to vitamin K deficiency. The prothrombin level of the blood was determined, and a daily dose of 10 mg. of the preparation was given for six days. The blood prothrombin levels were determined daily for eight days, and on the seventh and eighth days after treatment was begun the clotting time was also determined. The prothrombin level of most of the patients rose to normal limits within twenty-four to forty-eight hours after the initial dose of the preparation. After a 100 per cent level was reached it could be maintained for forty-eight to seventy-two hours without further medication unless there were fluctuations during medication. The level fluctuated when existing jaundice was aggravated or when a high fever, profuse vomiting or anorexia appeared suddenly, The rise of the prothrombin level was retarded in patients with pyloric obstruction, hepatic damage and severe sepsis and after colostomy. Patients with K avitaminosis from uncomplicated obstructive jaundice responded promptly to the daily administration of 10 mg. of preparation N-123. Patients with hepatic damage interfering with vitamin K storage and utilization and those with sepsis and pathologic changes in the gastrointestinal tract responded less promptly, less completely and for a shorter period.

Injury to Lung from Detonation of High Explosive. -King and Curtis describe the effects on the body of the detonation of a high explosive, particularly on the pulmonary system, and compare them with those observed in civilian life in peace time. Explosives are of two types: low and high. Low explosives have explosion velocities of a few thousand or less feet per second in contrast to high explosives, which have velocities of 5,000 to 25,000 feet. At every point in the immediate neighborhood the detonation of a high explosive sets up a momentary wave of high pressure and then a negative "suction" pressure, owing to the fact that the positive compression wave reduces the density of the air behind it to below normal atmospheric pressure. The wave of pressure is highest in the immediate region of the explosion and falls off rapidly as it moves away. The prime characteristic of a detonation is that whereas

the disturbance moves forward the objects through which it travels do not move with it but oscillate backward and forward. Thus the violence of a blast can bruise the walls of the lung as if they had been struck by a solid object. The pulmonary damage from the detonation of a high explosive is characterized by alveolar rupture and hemorrhage. Examination of persons killed by explosion (without obvious external injury) may reveal a tear of the lung or a bulbar hemorrhage, or in those who live for a time the meningeal vessels may be ruptured and the viscera may be lacerated. The results of experimental studies confirm the clinical and postmortem observations that pulmonary lesions predominate and substantiate the view that the lesions are due to the impact on the thoracic wall of the pressure component of the blast wave. Lesions of the central nervous system also may be produced by a blast. The mechanism responsible for the cerebral lesions has been explained as due to the hydrauliclike pressure that develops from the sudden compression of the thoracic cage and the consequent violent back pressure on the venous side. The pulmonary injury may be prevented by the use of air raid shelters, ditches, holes and gutters, by just lying flat on the ground in the prone position (the back of the thorax yields less to injury than the front part) or by covering the chest with sponge rubber or some similar material. The early recognition of the injury is of prime therapeutic importance. Complete rest is imperative, and judging from the condition of the lungs at necropsy and clinically from the embarrassed breathing every effort should be made to avoid any additional trauma to the lungs. Oxygen therapy may be worthy of more extensive use. The awareness that such damage may occur should stimulate all physicians to look for it among air raid casualties.

#### Surgery, St. Louis 11:169-332 (Feb.) 1942

*Myeloscopy: Intraspinal Endoscopy. J. L. Pool, New York.—p. 169. Fractures of Maxilla: Describing a Simplified Appliance for Cranio-maxillary Support and Fixation. C. W. Waldron and S. G. Balkin,

maxillary Support and Fixation. C. W. Waldron and S. G. Balkin, Minneapolis.—p. 183.

Some Observations on Quick Hippuric Acid Test in Hepatic Function. D. A. Campbell, Ann Arbor, Mich.—p. 195.

Postoperative Cholorrhea: Report of Case, with Profound Peripheral Circulatory Collapse (Shock) Due to Excessive Loss of Fluid and Electrolytes Through T Tube. F. R. Kcating Jr., Marschelle H. Power and J. T. Priestley, Rochester, Minn.—p. 198.

*Hemangioma of Liver: Discussion of Symptomatology and Report of Patient Treated by Operation. H. B. Shumacker Jr., Baltimore.—p. 200.

-p. 209.

Splenectomy: Method of Mobilizing Spleen in Presence of Dense Adhesions. J. D. Rives, New Orleans.—p. 223. Welch Bacillus Infections Arising from Stomach and Duodenum. W. C.

Quinn, J. W. Lord Jr. and L. J. Wade, New York.—p. 229.

Gas Gangrene of Abdominal Wall. W. C. Quinn, J. W. Lord Jr. and
L. J. Wade, New York.—p. 233.

Peritonitis: III. Studies in Peritoneal Protection, with Particular

Reference to Action of Sulfonamide Drugs in Experimental Peritonitis.

H. D. Harvey, F. L. Meleney and J. W. R. Rennic, New York. p. 244.

*Exudative Interstitial Nephritis (Pyelonephritis). E. T. Bell, Minne-

apolis.—p. 261.

Observations on Distribution and Transport of Gas in Gastrointestinal Tract of Infants and Young Children. J. R. Paine and C. B. Nessa, Minneapolis,-p. 281.

Cystic Degeneration of Ovaries: Experimental Study. J. C. Weed and C. G. Collins, New Orleans .- p. 292.

Myeloscopy,-Pool states that since the principle of intraspinal endoscopy, adapted to the diagnosis of lesions affecting the cauda equina and the lowermost portion of the spinal cord, was suggested four years ago nearly 400 "myeloscopic" examinations have been done. The instrument devised for the purpose may be introduced between lumbar spinous processes in much the same manner as a lumbar puncture needle. Trauma to nerve roots has not ensued. The conditions to be recognized by myeloscopy are varicose vessels, arachnoid adhesions of post-traumatic or postinflammatory origin, neoplasms, inflamed nerve roots associated with neuritis and herniated nucleus pulposus or hypertrophied ligamentum flavum. Despite the loss of 5 to 15 cc. of cerebrospinal fluid during myeloscopy, the incidence of postpuncture headache has not been any greater than that which follows a lumbar puncture. The explanation for this may be that the procedure is carried out with the patient in the upright position so that intracranial dynamics accommodate themselves as the spinal fluid flows out. Myeloscopy has revealed large collections of epidural fluid two.

four days after lumbar puncture, demonstrating that spinal fluid can continue to leak for some time after a lumbar tap. Therefore, myeloscopy should be delayed for at least five days after a lumbar puncture has been done; otherwise the procedure may be difficult, as the hydrostatic tension of the dural and arachnoid membranes will have been lost as a result of the leak. Myeloscopy has not yet been performed over the spinal cord, although it was done successfully within the cisterna magna of an anesthetized dog. The mycloscope has been used for intraventricular visualization through trephine openings in the human skull, and attempts are now in progress to study action currents from the nerve roots of the cauda equina. Myeloscopy will aid in the differential diagnosis of operable and inoperable lesions of the cauda equina and the lower portion of the spinal cord. It may often rule out post-traumatic malingering. The necessity of injection of iodized oil and exploratory laminectomy may be obviated by preliminary myeloscopy. Inoperable conditions depicted by myeloscopy are various types of varicose veins of the cauda equina, arteriosclerosis of the spinal cord and metastatic neoplasms.

Hemangioma of Liver.-Shumacker encountered a large hepatic hemangioma during a laparotomy which required the decision whether it was the cause of the patient's symptoms and whether resection would relieve the distress. He reviews 66 similar cases reported in the literature. The tumor of 56 of the 67 patients was resected. The youngest patient was 6 years old and the oldest 76. Fifty-one of 62 patients on whom data are available were females. The initial complaint of the patients was of a mass in the epigastrium or of some equivalent symptom. Other complaints were weakness, evening fever, slight local discomfort, a sense of weight, fulness or pressure in the upper part of the abdomen, dysmenorrhea, dysuria, pain in the back of the legs and severe or mild epigastric pain. Nausea, vomiting and anorexia were common. In 3 in whom the hemangioma ruptured, the illness was of short duration and suggested acute appendicitis, ruptured tubal pregnancy or peritonitis. In most of the others the complaints were chronic, beginning in some instances ten or twenty years before operation. The average duration of symptoms was nearly five years. In 54 an epigastric tumor was palpable at the time of operation. The symptoms of only 7 suggested disease of the gallbladder or of the biliary tract. On palpation nothing characteristic was observed about the tumor. The correct preoperative diagnosis was made on only 2 patients. Only 1 of the 56 patients operated on died. Various procedures were employed. Adequate mobilization of the liver, through division of the ligamentous attachment to the diaphragm and temporary compression of the hilar structures, is helpful in controlling bleeding. The tumor should never be cut into nor should it be aspirated. The real danger associated with hemangioma of the liver is rupture of the tumor. In bleeding from a hemangioma better results may be expected from resection than from packing. There were 5 deaths among the 11 patients whose tumor was not removed. Contributing factors were spontaneous rupture of the tumor before, during or after operation or bleeding from tapping or incising the tumor at operation. Two patients were treated successfully with the roentgen ray; I had an inoperable tumor of the right lobe and the other a tumor in the right lobe several months after a hemangioma of the left lobe had been resected. In general, most of the patients were relieved of their complaints after the tumor had been resected.

Exudative Interstitial Nephritis.—Bell states that in subjects seen at necropsy the obstructive form of pyelonephritis is about twelve times as frequent as the nonobstructive type. The age and sex distribution corresponds with that observed in hydronephrosis. The symptoms are usually overshadowed by those of hydronephrosis. Renal infection is present at necropsy about twice as often (61 to 83 per cent) in obstruction of the lower portion of the urinary tract as in ureteral obstruction above the bladder (23 to 46 per cent). The incidence of chronic hypertension in hydronephrosis is not greater than that in a control population of corresponding age. Cortical abscesses are frequently seen post mortem, but only 40 typical instances of acute nonobstructive pyelonephritis were observed among more

than 32,000 necropsies. Only 14 examples of chronic bilateral nonobstructive pyelonephritis were encountered. The available evidence indicates that this disease seldom causes chronic hypertension. The blood pressure of 5 patients has been reported to remain normal for more than one year after a unilateral nephrectomy for chronic atrophic pyelonephritis. Therefore there may be some other explanation for the success of the treatment in these cases, since many failures have been observed. In unilateral renal ischemia produced by Goldblatt's method the blood pressure returns to normal if the ischemic kidney becomes severely atrophic. The thick walled arteries in atrophic pyelonephritis represent disuse atrophy and not primary vascular disease.

## Tennessee State Medical Assn. Journal, Nashville 34:463-506 (Dec.) 1941

Lesions of Cervix. W. L. Williamson, Memphis.—p. 463. Pioneer Physicians and Medicine in Middle Tennessee. T. V. Wooding, Nashville.—p. 469.

**35:**1-38 (Jan.) 1942

*Formation and Use of Plasma, M. Semoff, Chattanooga,—p. 1. Alcoholism: Some "Carses" and Treatment. M. Moore, Boston.—p. 3. Practical Treatment of Cardiac Arrhythmias. J. A. Kennedy, Nashville.—p. 13.

Endocrine Therapy in Obstetrics and Gynecology. J. C. Burch and G. E. Kinzel, Nashville,-p. 17.

Formation and Use of Plasma.—Semoff believes that a practical and simple method of preparing and storing blood plasma in a small hospital or clinic is the Baxter vacuum technic. A series of 500 cc. flasks, containing the proper diluents and a partial vacuum, a machined valve, needles and a donor are all that is needed. The entire system is a closed one, safeguarded by rubber vacuum seals. Merthiolate is added as an extra precaution. A further technic for diluted plasma makes use of a 1,000 cc. flask which contains 500 cc. of an anticoagulating diluent. The initial donors will have to be volunteers, but thereafter blood should be replaced as it is drawn. Diluted stored plasma will answer almost all needs. However, for increased intracranial pressure undiluted plasma is best. The cost, discounting labor, is about one-tenth that of commercial human plasma. The small hospital or clinic with no added personnel can easily prepare its own plasma for its needs.

## Union Médicale du Canada, Montreal 71:1-110 (Jan.) 1942. Partial Index

*Present Treatment of War Wounds. G. Gordon-Taylor, London, England.--p. 11.

*Duodenal Achalasia: Clinical, Radiologic and Therapeutic Considerations. A. Cantero and A. Jutras, Montreal,—p. 16. Several Aspects of Nephritis. R. Dandurand, Montreal,—p. 29.

Syndrome of Gradenigo or of the Petrosal Apex in Course of Suppurating Otitis. R. Amyot and J. Brahy, Montreal,—p. 34.
Calculous Cholecystitis in Child. C. Bisson, Montreal,—p. 45.
Spinal Anesthesia. R.-E. Senecal, New Bedford, Mass.—p. 48.

Present Treatment of War Wounds .- Gordon-Taylor states that wounds caused by bomb fragments are produced not only by metal but by glass splinters, fragments of wood, pieces of stone and débris. The rarity with which gas gangrene has been encountered in this war is in striking contrast to its frequency during World War I. The débridement practiced now is not more thorough than it was then. The use of the sulfonamide derivatives and of plaster casts to insure complete rest is probably the important factor. Antigangrene serum is administered not in a routine manner but only to persons with severe wounds especially susceptible to gas infection, such as wounds of the buttocks, the perineum and the calf muscles. Secondary hemorrhages constitute a serious problem, but in the author's experience they were rare. Tetanus was extremely rare because of immunization. Burns have been a frequent lesion during this war. Treatment by coagulation is indicated for extensive burns of the body; it is definitely contraindicated for burns of the hands and the face. For the latter saline dressings, sulfonamide derivatives and tulle gras are most frequently used. Lesions caused by mines, which involve chiefly the lower extremities, are irequent in the navy. The calcaneam

is particularly vulnerable. All bones of the lower leg may be fractured, and dislocation of the knee is not rare. Compression fracture of the first lumbar vertebra is encountered after mine explosions; every patient who complains of a pain in the back should be subjected to roentgenoscopy. Abdominal injury is particularly likely to be produced by small fragments of bombs. The value of abundant transfusions of blood or its derivatives in grave shock has been demonstrated. Blast injury of the lung is characterized by expectoration and by distention of the lower part of the thorax. The typical abdominal lesions of blast are retroperitoneal hematoma, perirenal extravasation and intermesenteric encircling of the intestinal wall. MacWilliams called attention to "blast by immersion." It is observed in shipwrecked persons exposed to detonations in the surrounding water and may result in rupture of the small intestine, of the cecum or of the ascending colon. Some patients with lesions of this type have been known to survive after operation.

Duodenal Achalasia.-Cantero and Jutras classify duodenal dyskinesias as mechanical and functional. The term achalasia was first applied by Hurst to the deficient relaxation of the sphincters. Two groups of symptoms may be present: those caused by stasis and those resulting from autointoxication. Stasis and dilatation manifest themselves in a sense of fulness and of epigastric distention during or shortly after a meal. The distention may develop into a severe pain and may be followed by vomiting, prostration and headache. Among the consequences of duodenal autointoxication, attacks of migraine take the first place. They may cause the patient to abstain from food, with resulting emaciation and weakness. The malnutrition reacts on the mental state. Although anxiety, emotional stress, prolonged chagrin and intellectual overwork often elicit the syndrome, the psychic effects of malnutrition likewise influence the character. The incidence of duodenal stasis is comparatively high. Although the authors detected duodenal achalasia in children 9 and 11 years of age the disorder is rare in children. It is frequent in the aged and the middle aged and is somewhat more frequent in women than in men. It progresses in bouts that last from several weeks to several months, in the course of which the subject becomes pale or yellowish and loses weight, strength and control of the nerves. The resulting reduction in resistance involves the threat of intercurrent infections. Surgical treatment rarely produces satisfactory results. Medical treatment, if carried out faithfully, is, as a rule, effective. It includes provision for a diet rich in proteins, carbohydrates, mineral salts and vitamins. mental and physical relaxation such as may be obtained by life in the open air, drainage and lavage of the duodenum repeated two or three times a week for several months, and medication to establish vagosympathetic equilibrium, especially with acetylcholine and prostigmine.

#### War Medicine, Chicago 2:1-192 (Jan.) 1942

*Diagnosis, Treatment and Prevention of Meningococcic Meningitis, with Résumé of Practical Aspects of Treatment of Other Acute Bacterial Meningitides. J. H. Dingle and M. Finland, Boston.—p. 1.

*Local Chemotherapy of Experimental Gas Gangrene. G. B. Reed and J. H. Orr, Kingston, Ont., Canada .- p. 59.

Treatment of Experimental Gas Gangrene with Zinc Peroxide. G. B. Reed and J. H. Orr, Kingston, Ont., Canada.—p. 79.

Treatment of Experimental Gas Gangrene with Plaster Immobilization and Chemotherapy. G. B. Reed and J. H. Orr, Kingston, Ont., Canada.-p. 83.

*Antigenic Value of Clostridium Perfringens (Clostridium Welchi) Toxoid in Prevention of Gas Gangrene. Sarah E. Stewart, Bethesda, Md.

Medical Aspects of Selective Service System: II. Follow-Up Study. M. S. Saslaw and C. S. Junkermann, Camp Shelby, Miss.—p. 99.

Development of Equipment for Administration of Dried Plasma in Armed Forces. M. Strumia, Bryn Mawr, Pa.; L. R. Newhouser, D. B. Kendrick Jr., Washington, D. C., and J. J. McGraw, Bryn

Mawr, Pa.—p. 102.

Analysis of 373 Cases of Acute Craniocerebral Injury. C. Pilcher and R. Angelucci, Nashville, Tenn.—p. 114.

Meningococcic Meningitis .- Dingle and Finland review the present status of the prevention, diagnosis and treatment of acute bacterial meningitis. Epidemics which occurred during the last world war are prevalent in some countries today and may in the near future become widespread in the armed forces or the civilian population of this country. Every patient with meningitis represents an individual problem and should be in the hands of one physician during the entire course of his illness. The diagnostic aids and procedures are the clinical history, physical examination, blood culture, hematologic examination, cultures of miscellaneous material, the determination of the nonprotein nitrogen of the blood, urinalysis and lumbar puncture performed as soon as possible under strict surgical asepsis, determination of the initial pressure, determination of the dynamics of the cerebrospinal fluid, chemical analysis of the cerebrospinal fluid and the blood, cytologic study and bacteriologic isolation. The treatment of meningococcic meningitis consists in the institution of chemotherapy immediately after the presence of organisms is known, the correction of dehydration by administering isotonic solution of sodium chloride with or without dextrose, specific serum therapy to supplement chemotherapy, the treatment of focal infections, the utilization of laboratory aids (determination of the level in the blood and cerebrospinal fluid of the drug administered, the hemoglobin concentration, blood counts and cultures) for the control, change or withdrawal of therapy and symptomatic and supportive treatment. The convalescent period should be about one month after complete recovery and longer if the illness was severe and protracted. In the management of a patient with a relapse or a recurrence the differential diagnosis should include a concomitant infection, infection at another focus caused by the original organism, drug fever and serum sickness. A lumbar puncture, with complete examination of the cerebrospinal fluid as after the initial puncture, should be performed, the total and differential erythrocyte counts should be repeated and treatment as for an initial infection should be resumed if indicated.

Experimental Gas Gangrene.-Reed and Orr controlled experimental gas gangrene in guinea pigs after inoculating them with ten times the minimal lethal dose of Clostridium welchi, Clostridium septicum, Clostridium novyi or Clostridium sordelli or with a mixture of one or more of these and Clostridium sporogenes or Clostridium histolyticum by local therapy with one of the sulfonamide derivatives. Infection caused by Cl. welchi responded most readily to chemotherapy. Infections caused by Cl. septicum and Cl. novyi were somewhat more resistant, and those caused by Cl. sordelli were definitely resistant to chemotherapy. In the order of increasing effectiveness the drugs tested were sulfanilamide, sulfacetamine, sulfaguanidine, sulfapyridine, sulfamethylthiazole, sulfadiazine and sulfathiazole. The superiority of local to oral treatment is more definite with the less efficient than with the more efficient drugs.

Zinc Peroxide for Experimental Gas Gangrene.-Reed and Orr observed that the introduction of zinc peroxide into wounds of guinea pigs into which ten fatal doses of Clostridium welchi, Clostridium septicum, Clostridium novyi or Clostridium sordelli previously had been injected resulted in a high percentage of recoveries and a prolongation of the survival time among guinea pigs with a fatal infection. Zinc peroxide was slightly less effective than sulfathiazole in the treatment of wounds in which gas gangrene infection had become established before therapy was instituted.

Prevention of Gas Gangrene.-Stewart outlines a method for concentrating Clostridium perfringens toxoid which she has successfully used in the prophylaxis of gas gangrene. Her evidence is based on the results obtained with 54 guinea pigs given injections of the toxoid. The serum of only 7 of them showed 0.25 unit of antitoxin or more per cubic centimeter. One month after the last injection of toxoid each guinea pig was inoculated intraperitoneally with one to four minimal lethal doses of a Cl. perfringens culture. None of the animals survived except those which showed antitoxin in the serum by mouse titration. When ten to thirty minimal lethal doses of culture were injected intramuscularly into an immunized guinea pig only a localized infection frequently resulted. The low antigenicity of the toxoid may be due to a loss of some antigenic factor during filtration. Since the lethal toxin can be concentrated many times by this process, it may be that other factors are necessary to produce a good antigen and that these are lost in filtration.

#### FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Archives of Disease in Childhood, London 16:211-274 (Dec.) 1941

Infantile Diarrhea and Vomiting. R. M. Campbell and A. A. Cunning-

Shock in Newborn Infant. R. A. Miller .- p. 230.

Secretion of Urine by Premature Infants. W. F. Young, J. L. Hallum and R. A. McCance .- p. 243.

*Familial Renal Dwarfism. S. Graham and J. H. Hutchinson.-p. 253.

Familial Renal Dwarfism.—Graham and Hutchinson report 3 and probably 4 instances of renal dwarfism that occurred among 8 live-born children. Both parents are healthy. A history of renal disease on either side of the family was not present. The 4 instances occurred in successive pregnancies in the middle of the mother's childbearing life. No information is available with regard to the underlying pathologic changes, as permission for postmortem was not granted for the 2 patients seen by the authors, the third patient died some time before and the fourth patient is apparently well but still small. As usual, hypertension was not present nor were casts found in the urine. Because of these features it has been suggested that renal dwarfism is more often due to congenital hypoplasia of the kidneys than to chronic nephritis. Coplin has suggested that the renal hypoplasia might be due to defective arteriogenesis with a consequent defective development and a scarcity of secretory units. Such an inherent fault in the germ plasm might explain the familial incidence.

## British Journal of Experimental Pathology, London 22:293-316 (Dec.) 1941

Inhibition of Bacterial Growth by Indoleacrylic Acid and Its Relation to Tryptophan: Illustration of Inhibitory Action of Substances Chemically Related to Essential Metabolite. P. Fildes.—p. 293.

Sarcoma Produced by Subcutaneous Injections of Overheated Cotton-seed Oil into Mice. S Beck.—p. 299.

*Occurrence of Influenza B in Southern England. Dora Lush, C. H. Stuart-Harris and C. H. Andrewes.—p. 302.

Modification of McIntosh and Fildes's Anaerobic Tin. R. E. B. Hudson. ---р. 305.

Experiments with Renin. R. W. Scarff and N. H. Martin .- p. 309.

Influenza B in Southern England .- Lush and her associates tested against influenza B virus all the serums avail-- able from the 1939 epidemic of influenza in England, including serums known to have shown a rise in titer against influenza A virus. The rise in titer in the 8 serums positive to the B strain of the virus was respectively 600, 150, 150, 100, 50, 40, 20 and 10 fold. Influenza caused by the B virus was widespread not only during the early part of 1939 but throughout the whole epidemic period. It occurred in two of the institutions investigated at the same time as an outbreak of influenza A, and clinically it was not distinguishable from virus A infection. No serum showed an antibody rise against both the A and the B virus. The serum of about half of the patients showed no rise in antibody against either virus, and consequently the authors assume that in these patients the disease was due to an as yet unknown agent.

## British Medical Journal, London

2:865-896 (Dec. 20) 1941

Duodenal Intubation: Significance of Cellular Contents of Bile in Diagnosis of Diseases of Biliary Tract. A. Fidler, J. Innes and L. S. P. Davidson.—p. 865.

Observations on Some Normal and Injurious Effects of Cold on Skin and Underlying Tissues: III. Frostbite. T. Lewis.—p. 869.

*Experimental Study of Wounding Mechanism of High Velocity Missiles. A. N. Black, B. D. Burns and S. Zuckerman.—p. 872.

Blood Pressure Raising Reflexes in Hysterical Anesthesia. J. V. Cable and F. H. Smirk.—p. 874.

and F. H. Smirk.—p. 874.

Temporary Vascular Occlusion Ending Fatally in Uremia, A. M. Glen.
—p. 875.

Wounding Mechanism of High Velocity Missiles .--According to the investigation carried out by Black and his colleagues on rabbits and on blocks of 20 and 5 per cent gelatin into which a cordite charge (a 322 inch steel ball weighing 53 mg.) was fired at velocities varying from 500 to 5,000 feet per second, it appears that the disproportionate degree of

tissue destruction caused by small high velocity bomb splinters is due to the fact that particles lying in their path are thrown radially with sufficient violence to leave a central cavity around which tissues at some distance from the track are momentarily stretched. While blood vessels are usually elastic enough to experience this strain without anatomic and functional injury and nerves without obvious anatomic injury, bones are often broken at some distance from the track.

## Journal of Hygiene, London 41:345-462 (Dec.) 1941

Ecology of Bedbug, Cimex Lectularius Linnaeus, in Britain: Report on Research, 1935-1940. C. G. Johnson,-p. 345.

## Journal of Laryngology and Otology, London 56:377-414 (Nov.) 1941

Otogenous Meningitis: Intrathecal Administration of Sulfonamide. C. A. Hutchinson .- p. 377.

Traumatic Paraesophageal Cellulitis: Case. D. B. Kelly .- p. 387. Cerebrospinal Puncture and Air Replacement for Otosclerosis. E. R. G. Passe .- p. 389.

## Journal Obst. & Gynaec. of Brit. Empire, Manchester 48:685-768 (Dec.) 1941

Persistent Functional Corpus Luteum. J. Black, O. S. Heyns and J. Gillman .- p. 685.

Diabetes Mellitus and Pregnancy. H. H. F. Barns .- p. 707.

Renal Function Tests in Normal and Toxemic Pregnancy. Vera I. Krieger and Nanette Norris .- p. 726.

Differential Diagnosis of Vaginitis in Menopausal Women. H. C. McLaren .- p. 742.

Meigs's Syndrome (Ovarian Fibroma with Ascites and Hydrothorav):
Report of Case. C. Borg.—p. 750.
Unusual Case of Carcinoma of Cervix. S. Way and J. Simpson.—

p. 753.

#### Lancet, London

2:751-782 (Dec. 20) 1941

*Pfeister's Bacillus (Influenzal) Meningitis, N. Mutch.--p. 751. Pfeister's Bacillus Meningitis: Recovery with Chemotherapy. N. M. Jacoby .- p. 753.

Photoelectric Method of Estimating Hemoglobin. D. K. Hill and A. C

Pincock.—p. 754.

*Treatment of Bedclothes with Dust Laying Oils: Use of Oil in Water Emulsions. M. van den Ende and J. C. Thomas.—p. 755. Hyperchromic Anemia in Infant: Response to Liver Extract. L. Cele.

-p. 759.

Pfeiffer's Bacillus (Influenzal) Meningitis, - Mutch states that influenzal meningitis due to Pfeiffer's bacillus, which is comparatively uncommon in England, has been observed in 3 patients and probably in 2 others since August 1941. England's comparative immunity, the author suggests, may be due to a higher individual resistance to Pfeiffer's hacillus acquired in the land of the common cold. In America the bacilli are described as being numerous. In the author's patients the bacilli were so few that they might easily have escaped notice. The disease may possibly be overlooked sometimes when laboratory facilities are inadequate. The organism often is not seen or fails to grow from cerebrospinal fluid from patients with suppurative meningitis. There is a tendency to accribe this failure to death of the bacteria during transport of the specimen or to administration of sulfonamide derivatives before the fluid is collected, but it is conceivable that the group of cases in which culture is unsatisfactory may include a proportion of cases of influenza.

Dust Laying Oils for Bedclothes.-The possible importance in preventing the spread of infection and the relative simplicity of treating bedelothes with liquid petrolatum have caused van den Ende and Thomas to find substitutes for liquid petrolatum, which in the quantity necessary is expensive, and to simplify the method of application. The shortage of paraffinum liquidum British Pharmacopeia has led to the introduction of paraffinum liquidum leve British Pharmacopeia. This is 2 highly refined, inert petrolatum oil with a lower density and viccosity than the original oil and represents the most refined the of what are known technically as white oils. These white oils are available in considerable quantities, and the authors have used one which differs from the new British Pharmacofea product only in that is the product only in that it has a higher acid value. Unlike refired Yellow spindle oils, the white oils are not carcinogenic. M

the white oils tested have proved to be efficient dust layers. The fact that these oils, with the aid of suitable wetting and emulsifying agents, result in centrifuge stable emulsions with water overcomes the original difficulty of applying an organic solvent and makes mass treatment of bedclothes a practical possibility in hospital laundries. Furthermore, the emulsifiers used are bactericidal under natural conditions, especially against wet organisms, as those in moist droplets. Bedclothes are thoroughly soaked in a 20 per cent water solution of the oil, spun in a hydroextractor and then dried in the hot air drying chamber. Bedclothes treated with the soluble oils not only retain most of the organisms within the actual fabric but also kill the organisms in droplets before they dry. The use of the soluble oils in hospital trials resulted in a 99 per cent reduction in the number of organisms liberated during bed making.

## Medical Journal of Australia, Sydney

2:635-660 (Dec. 6) 1941

Recent Developments of Knowledge of Liver Function and Behavior. R. D. Wright,-p. 635.

Tuberculin Patch Test. J. H. Colebatch.—p. 640.
Patch Test: Simple Tuberculin Test for General Medical Practice. D. Anderson.-p. 645.

Diagnosis of Intraventricular Hemorrhage. R. S. Steel,-p. 647.

### Practitioner, London

148:1-64 (Jan.) 1942

Pneumonitis or Virus Pneumonia, W. T. Longcope,--p. 1. Modern Views on Pneumonia and Its Treatment. M. Davidson .- p. 9. Chronic Bronchitis in the Elderly. F. A. Roper.-p. 18. Rickets in War Time: Its Prevention and Treatment. Helen M. M.

Mackay .-- p. 25.

Measles and Whooping Cough: Prevention and Treatment. E. H. R.

Harries .- p. 32. Prevention and Treatment of Frostbite. R. Greene.-p. 38.

Vitamin C: Its Sources, Properties and Requirements. Cecile Asher, -p. 44.

Minor Surgery: VII. Bursas and Ganglions. H. J. Burrows .- p. 50,

## Schweizerische medizinische Wochenschrift, Basel 71:1409-1436 (Nov. 8) 1941. Partial Index

Alzheimer's Disease and Pick's Disease. A. Favre .- p. 1409.

*Treatment of Cavernous Pulmonary Tuberculosis with Suction Drainage of Cavities. A. Schuberth .-- p. 1412.

Relation Between Sugar Absorption and Phosphate Metabolism: Secretion of Phosphorus into Intestinal Lumen During Absorption of Monosaccharides. L. Laszt and L. Dalla Torre .- p. 1416.

Studies on Efficacy of Various Methods of Room Disinfection by Means of Formaldehyde-Water Vapors and Paragerm (Mixture of Phenyl-Oxy-Benzoate and Para-Iso-Propyl-Metacresol-Benzoate) Vapors, B. Fust.—p. 1425.

Chronic Alcoholism and Suicide: Bandel's Theory of Influence of Alcoholism on Incidence of Suicide. Z. Shimshony.-p. 1429.

Suction Drainage of Pulmonary Cavities .- Schuberth suggests that immunobiologic states and mechanical factors play a part in the varying healing tendencies of tuberculous The cavernous wall and its surroundings, the air pressure inside the cavity and the behavior of the draining bronchus are important mechanical factors. The production of a continued negative pressure in the tuberculous cavity, such as is produced by Monaldi's suction drainage, promotes its shrinkage. By removing the toxic contents, suction drainage also cleanses the cavernous walls. As a result coughing decreases, bacilli disappear from the sputum and the cavity, the toxicity diminishes and the general condition improves. Among the indications for Monaldi's suction drainage the author stresses that there must not exist a free pleural space corresponding to the region of the cavity. The presence of even a small pleural space results in the formation of empyema. It is therefore essential to make careful attempts at pneumothorax, and only after adhesion is absolutely certain can suction treatment be started. If the pleural space is only partially free, an attempt can be made to obliterate it by the introduction of talcum. The author found this procedure helpful in a number of cases as a preparation for suction drainage. A fairly good immunobiologic equilibrium is also desirable. Fever bouts should have subsided. It may be desirable first to subject the patient to sanatorium treatment. Experience has demonstrated that the danger of complications is comparatively slight. The author employed the treatment in 56 cases. The time elapsed is too

short to permit evaluation of the permanent results. Suction drainage is a valuable addition to the treatment of tuberculous cavities. When it alone does not produce a permanent cure, it puts the patient into a better condition for a subsequent thoracoplasty. Suction drainage makes thoracoplasty possible in some cases in which it would otherwise have been impossible.

## Anais Brasileiros de Ginecologia, Rio de Janeiro 12:441-524 (Dec.) 1941. Partial Index

*Value of Artificial Estrogens in Gynecologic Disease. N. Arenas. -p. 441.

Synthetic Estrogens in Gynecologic Disease.-Diethylstilbestrol, according to Arenas, produces estrus in spayed animals and proliferation of the endometrium, enlargement of the breasts and similar phenomena in menopausal or castrated women. The drug is twice as strong as natural estrogens. It can be administered by mouth and is less expensive than the natural estrogens. It should be taken in milk to prevent gastric symptoms. The author obtained satisfactory results in a large number of patients with menopausal symptoms, hypogonadism, vulvar pruritus and cessation of milk secretion and in young girls and old women with vaginitis. The daily dose varied from 1 to 2 mg. of the substance up to a total of 80 mg. It is advisable to stop the treatment when symptoms are almost under control and either to repeat after a moderate period of rest or to administer the substance in smaller doses and at longer intervals.

## Archivos de Pediatría del Uruguay, Montevideo

12:767-830 (Dec.) 1941

Tuberculosis in Children: Significance of Heredity and Contagion. P. de Elizalde .- p. 767.

Decapitation of Superior Epiphysis of Humerus Caused by Obstetric Trauma. R. J. Caritat and E. Peluffo .- p. 785.

*Seven Years' Experience with Diabetes Mellitus in Children. Maria Luisa Saldún de Rodríguez .- p. 796.

Nicolas-Favre's Disease in Child of Eighteen Months. V. Pereira and J. V. Gil.—p. 812.

Diabetes in Children.—Saldún de Rodríguez reports observations lasting seven years on 57 children with diabetes mellitus. The course of diabetes in the child is determined by two groups of factors: (1) physiologic factors involving growth, development, glycemic instability and the glands of internal secretion and (2) treatment, which is concerned with diet, the use of insulin, adjuvant medication, hygienic care and social protection. The dietetic treatment is fundamental. The most effective diet is one which is rich in carbohydrates and in which the ratio of antiketogenic to ketogenic substances is kept at 2 or more. The quantity of proteins and the caloric value should correspond to the requisites for healthy children. The menu should be individualized and as far as possible adjusted to the taste of the child and to the economic status of the family. Insulin therapy is indispensable for the child; without it the course of the disease will always be unfavorable. At first insulin should be given in a quantity sufficient to metabolize all the diet and to maintain a humoral equilibrium. Later, in cases of evident improvement, the amount can be gradually diminished and some of the injections omitted, but the humoral equilibrium must always be maintained. The author employed ordinary insulin because it is easier to manage and does not produce nocturnal hypoglycemia. Liver therapy produced favorable results in hepatomegaly and in nocturnal hyperglycemia; ovarian, testicular and hypophysial therapy are useful in the prepuberal period. Therapy with vitamins B1 and D and calcium was employed. Social protection is an important factor: it comprises instruction of the family, prevention of the development of an inferiority complex and collaboration with the teacher and the visiting nurse. If correct treatment is given, clinical normalization of the secretory equilibrium, of the metabolism and of physical and intellectual growth can usually be obtained in the diabetic child. Disturbances in the sexual sphere, such as delayed puberty or menstrual disturbances. are comparatively frequent but can be ameliorated or corrected by endocrine therapy. It is much more difficult to establish a humoral equilibrium in a child in whom it has been neglected for a long time than in a child who has been correctly treated from the beginning,

## Revista Cubana de Cardiología, Havana 2:299-388 (Sept.-Dec.) 1940. Partial Index

*Therapy of Chronic Arterial Hypertension by Large Doses of Vitamin A. J. Govea Peña and M. Villaverde.—p. 332.

Vitamin A in Chronic Arterial Hypertension,-Govea Peña and Villaverde administered vitamin A to 65 patients with chronic hypertension. Administration of 180,000 units of vitamin A for several days resulted in lowering of the blood pressure 30 to 40 mm, of mercury. After this 90,000 units was given daily for several months. Lowering of the blood pressure frequently took place during the first forty-eight hours. In all cases, symptoms of hypertension diminished early in the course of the treatment. Headache generally disappeared within the first forty-eight hours. The symptomatic and functional improvement continued long after the treatment had been discontinued. None of the 65 patients were treated by any special rest different from that which they had in the course of previous treatments, which had failed. The only 4 whose treatment was a failure had malignant arterial hypertension. Vitamin A given in large doses has a considerable hypotensive effect. The vitamin is best administered by mouth; intramuscular injections give rise to inflammation in about 90 per cent of cases.

## Rev. d. Inst. Salub. y Enferm. Trop., México, D. F. 2:129-256 (Sept.) 1941. Partial Index

*Artificial Active Immunization Against Typhoid and Paratyphoid A and B with Only One Dose of Typhoid and A and B Paratyphoid Vaccines Precipitated with Alum. A. P. León, F. Escarza and E. Rabasa.

Active Immunization Against Typhoid and Paratyphoid A and B.-León and his colleagues found that alum has a bactericidal effect on salmonellas of the typhoid and paratyphoid groups and precipitates them; a given dose of precipitated typhoid or paratyphoid bacteria immunizes animals with greater immunity than that which is produced by three times the same dose of nonprecipitated bacteria. They prepared a vaccine with typhoid and A and B paratyphoid bacteria which was precipitated with alum. The vaccine was administered to several hundred persons in one dose of 1 cc. containing 1,000 million typhoid bacteria and 500 million each of paratyphoid A and B bacteria. The O, H and Vi agglutinins and protecting antibodies were determined in the blood serum before and after vaccination by the mouse protection test. A single dose of the alum precipitated vaccines gave immunity as high or higher than that produced by three doses of the standard vaccines. The local and general reactions caused by the alum precipitated vaccine are almost equal to those caused by one of the three doses of the standard vaccine and are not considered a contraindication to its use in individual or mass immunization.

## Archiv für klinische Chirurgie, Berlin 199:559-666 (Dec. 23) 1940

*Solitary Nanthoma of Bone. H. Puhl.-p. 559.
Pathologic Bone Fractures as Sequels of Sport Injury. P. von Puky.

*Struma Suprarenalis Cystica Hemorrhagica. C. H. Schröder. p. 595. Attempted Conservative Treatment of Spontaneous Gangrene. D. Pan--p. 587.

čenko.—p. 607.

Perthes' Disease and Coxa Vara. S. Nagura.—p. 613.

Neurinoma of Cauda Equina. K. Kratochvil.—p. 619.

*Influence of Surgical Trauma on Venous Blood Pressure. P. Ollinger.

Solitary Xanthoma of Bone.-According to Puhl, localized xanthoma of bone occurs in solid or cystic form, and in its clinical behavior and microscopic appearance it greatly resembles giant cell tumor or genuine bone cyst, which are dysontogenic mesenchymal blastomas. The difference consists merely in the yellow discoloration of the tissue or the cholesterol content of the cyst produced by a lipoid modification of the mesenchymal tumor cell. The appearance of lipophagic granuloma, the inflammatory component of which can be intensified by necrosis, develops only after disintegration of the xanthoma cells and precipitation of crystalline cholesterol, as the result of foreign body irritation of the still functioning mesenchymal cells. Xanthoma of bone thus is a giant cell tumor or a bone

cyst the mesenchymal cells of which have undergone secondary lipoid changes, such as occur also in other tumors. For this reason bone xanthoma is best identified by the term "solid or cystic xanthomatous mesenchymal blastoma." There is m primary disturbance in the lipid metabolism, although slight hypercholesteremia may have been demonstrated in a few cases; the tumor formation is independent of such a disturbance. The lipid storage of the mesenchymal tumor cell develops neither from an increased supply nor from absorption from decaying foci. Stasis of lymph likewise cannot be demonstrated. Xanthoma is apparently the result of an actively increased cellular function comparable to the lipid and particularly the cholesterol metabolism. The giant cell tumors and ganglions of the tendon sheaths are mesenchymal blastomas. Their genesis corresponds to the corresponding neoplasms in bone. These tumors likewise frequently show a lipoid modification of the mesenchymal cells. Thus the embryonal mesenchymal cell is the vehicle of the lipoid modification in all these tumors. Localized xanthoma of bone is a benign tumor as far as its histologic character corresponds to that of giant cell tumor or bone cyst. However, a malignant tumor may be masked by similar roentgenologic and macroscopic appearances. A differentiation from the systematic and generalized lipoidoses seems necessary, but the occurrence of polyostotic forms must be considered.

Struma Suprarenalis Cystica Hemorrhagica.-According to Schröder, Henschen applied the term struma suprarenalis cystica hemorrhagica in 1906 to blood cysts of the adrenal glands. The literature contains records of only 20 cases of this condition. The cyst originates from an adrenal gland or an adrenal tumor and develops gradually, as a rule in the course of decades and as the result of successive hemorrhages into the cystic cavity. Generally the cyst causes difficulties and is discovered only after it has become so large that it interferes with neighboring organs (kidney, spleen, liver, large intestine). Frequently an internal epithelial lining is absent. Adrenal tissue can be demonstrated in the cystic wall or adhering to it; this corroborates the diagnosis. The author reports the successful extirpation of an adrenal blood cyst of 3.75 liters capacity from a woman aged 61. The flank incision of Kultner with combined retroperitoneal and intraperitoneal maneuvers proved advantageous in the removal of the cyst. Marsunialization of the cyst should be resorted to only in an emergency.

Influence of Surgical Trauma on Venous Blood Pressure.—Ollinger investigated the effect of the anesthetic and oi surgical trauma on the venous pressure during the postoperative period. The pressure was determined by the Moritz and von Tabora method. In all, two hundred and seventy-four determinations were made on 78 patients, the pressure being determined once before the operation and from two to six times afterward. In two thirds of the patients the venous pressure feil immediately after the operation, but in the other third it The fall was greatest in patients undergoing gastric resection and the rise in those undergoing strumectomy. The extent and persistence of fluctuations in venous pressure generally show some relationship to the extent and nature of the intervention and to the type of anesthesia. The postoperative venous pressure reaction is greater when general anesthesia is used. Trauma caused by general anesthesia is at first considerable but is less persistent than that caused by surgical intervention. Slight upward or downward fluctuations are of no particular prognostic significance. Considerable fluctuations indicate substantial circulatory impairment, particularly if the arterial pressure decreases at the same time. If several days after the operation the venous pressure shows no tendency to return to the initial figure, the circulation is threatened even in the absence of considerable fluctuations in the arterial pressure. The behavior of the venous pressure early indicates possible circulatory and respiratory complications and thus gives hints as to the treatment to be employed. Impairment of the ressiratory function may likewise play a part in the development of postoperative fluctuations in the venous pressure. Fluctuations in venous pressure suggest that the postoperative condition is nearly always a collapse for which the term "shock" is not suitable.

## Book Notices

The Furtherance of Medical Research. By Alan Gregg, M.D., Director for the Medical Sciences at the Rockefeller Foundation, New York. Cloth. Price, \$2. Pp. 129. New Haven: Yale University Press; London: Oxford University Press, 1941.

This is the eighteenth in the series of the Terry Lectures. It records the development and importance of modern medical research. Gregg emphasizes the importance of selecting the proper persons for research. The investigator should be in a university environment where he is at least tolerated if not appreciated and where he has easy and informal access to the minds of colleagues, where he may have the opportunity to develop disciples and to sharpen his mind. The medical scientist needs association and assistance from a wide range of "Medical research bears obviously close relation to research of many kinds. As the physiology of today may become the clinical knowledge of tomorrow, so the discoveries of physics and chemistry of today may become an intimate element in the physiology of tomorrow." This should convey to the student who plans to enter medicine the importance of the preclinical sciences, the significance of which seems to elude the grasp of many who are attempting to teach them.

The requirements of state boards of licensure are not synonymous with those of an adequate training for medical research. The author contrasts the practitioner of medicine and the investigator in the words of Sir Thomas Lewis: "Self confidence is by general consent one of the essentials to the practice of medicine, for it breeds confidence, faith and hope. Diffidence, by equally general consent, is an essential quality in investigation, for it breeds inquiry. . . . A natural companion of confidence is an easy and uncritical acceptance of statements of fact and of hypothesis; it is often coupled with a very wide and diverse acquaintanceship with other men's work and thoughts. The companion of diffidence is skepticism; it tends to be coupled with knowledge less extensive but derived more from personal experience and analysis, knowledge more precise, and often more fundamental. . . . The support of research men of no ability is an extremely wasteful procedure. It is somewhat worse than burning of money because you can easily dispose of the ashes left by a check, whereas the residue of worthless research is publications which choke the libraries, the bibliographies and the minds of students everywhere."

Gregg has described the research worker thoroughly. Usually possessing little means, self sacrificing and shy, these people devote themselves to their ideas, working long into nights and holidays, with little thought of pecuniary return. They are not to be diverted from their course, and they are to be thought of kindly and treated with consideration despite the fact that they do not conform to the usual social pattern. They are occupied with the world's work and they are stimulated by nothing so much as by devotion to an idea and to a job. The modest salary of the researcher is deprecated, as it encourages the talented man to deviate toward the more lucrative alternative, the practice of medicine. It also forces the best who remain in research to such economic struggles as to produce "a virtually sterile academic society, a professoriate overconcerned with economic security and therefore secretly rebellious or timidly resigned, or the academic career open only to those who have inherited money or married it. Men with energy and common sense but no fortune of their own will refrain from entering or advising entrance into so timid and defenseless a company. The part time man, bound to one city by a local practice which supplements his income, encourages the use of availability rather than ability as the criterion for clinical appointment. Gregg believes that this practice is the most serious present danger to the future of clinical medicine in this country. The thought that the clinician may repress the development of research by undoing the groundwork laid by the preclinical teachers is a provocative one.

From his wide experience Gregg has arrived at a fascinating method for computing academic health. If one divides the professors' salary by the figure that it costs a student per year to live and to attend medical school, a quotient is obtained which if below 3.6 is associated with languishing academic recruitment

and decay of the university. When it is above 6.5 the life of the professors' post is comfortable and well competed for.

The main resources for the support of medical research besides the self-sacrificing researcher and his family are personal friends of research men, public subscription (for example, the President's birthday ball), industry, patenting the results of research, the government, the universities and the foundations. The remarks on support for medical research from government are timely, for it must be obvious to any one with half an eye that the future of medical research stands or falls by the nature of this support. The Medical Research Council in Great Britain is presented as a model because of the quality of its work and its unincumbrance by political or parsimonious factors. This council of eleven members is composed of eight men chosen for their scientific and medical qualifications; one other member represents the House of Lords and another the House of Commons. At present the remaining member, the treasurer, is a distinguished banker. Direct political influence is not likely to affect the decisions of the body. This council consists mainly of a group of experts in medical research with full authority to use and control the public money placed at its disposal, independently of all other bodies. This body, as well as our own National Research Council, has pioneered in a field beset by many thorny problems.

The book points out that about one hundred foundations have been organized within the last ten years, and therefore money possibly has been diverted from universities into these tax free holdings. One feels that this development has catalyzed some modern political thought into punitive plans against these financial giants. Gregg has some advice to spare for these relative newcomers in the field. It has been found that capital grants for endowment or long term grants are healthier than short term grants. Foundation support for a germinal idea is advisable (for example, the Commonwealth Fund in the development of child guidance). The fellowship system has yielded unexpected returns, particularly when the fellows were able to range the world.

This short book is addressed to the entire medical profession, to the medical student, to the student who contemplates entering medicine and to many in the allied and basic sciences. It should be read by any who evince or profess an interest in medical research. It will most certainly result in a reevaluation of the position of the thinking man, for its pages shout the admonition "justify yourself."

Enfermedades de las arterias periféricas. Por el Dr. Alfredo V. di Ció, profesor adjunto de patología médica en la Facultad de clencias médicas de Buenos Aires. Paper. Pp. 461, with 129 illustrations. Buenos Aires; Libreria y Editorial "El Ateneo," 1941.

This work emanates from the First Division of Clinical Medicine of the University of Buenos Aires under the able direction of Prof. Mariano R. Castex, well known in this country, who wrote the prologue. Diseases of the peripheral arteries constitute an interesting chapter in human pathology, not only because much of value remains to be explored, but because new syndromes have appeared which have been proposed as independent entities but which have the one common characteristic of being based on diseases of the arteries or of their smallest ramifications. The author studied some 400 cases exhibiting some disturbances attributable to alterations of the peripheral arteries, the great majority presenting signs of claudication and gaugrene in the lower extremities. The work includes a study of these 400 cases in detail, as well as descriptions of the technic and the results obtained with the author's new procedure of employing the injection of a carbon dioxide-oxygen mixture. He believes this constitutes a distinct advance in treatment. The subject is presented in orderly fashion, including generalities and technic of methods of exploration in Part 1. Part 11 is devoted to arterial disturbances of functional origin, and part III to arterial diseases of organic origin. The fourth and final part deals with the treatment of peripheral vascular disease. The author recommends absolute abstinence from tobacco in any form, declaring that he has never seen improvement in any patients under his care unless this suppression of tobacco was demanded. He has observed, moreover, that simple suppression of tobacco was accompanied by the arrest of the disease, causing the initial symptoms to disappear without recourse to any other

therapy. His statistics include a series of cases in which the symptoms improved following the treatment instituted plus the suppression of tobacco but reappeared when the smoking habit was renewed. Abstinence from alcohol also is advised. The author goes into great detail regarding general hygienic, dietetic and medical management, and surgical treatment when it is required. His own procedure includes the use of the carbon dioxide-oxygen mixture. The latter is used in place of subcutaneous injections of carbonic acid. The technic of the injection is related in great detail. Summaries of 72 cases and a bibliography terminate the work.

Synopsis of the Preparation and After-Care of Surgical Patients. By Hugh C. Ilgenfritz, A.B., M.D., Instructor in Surgery, Louislana State University School of Medicine, New Orleans, and Rawley M. Penick Jr., Ph.B., M.D., F.A.C.S., Professor of Clinical Surgery, Louislana State University School of Medicine. With foreword by Urban Maes, M.D., D.S., F.A.C.S., Professor of Surgery and Director of the Department, Louislana State University School of Medicine. Fabrikoid. Price, \$3. Pp. 532, with 55 illustrations. St. Louis: C. V. Mosby Company, 1941.

While the evaluation of surgical risk depends, in the main, on experience and judgment, certain factors under the control of the surgeon can modify and control much of the risk. These factors have become more tangible in recent years and are approaching scientific reality. The ability of a patient to withstand major surgical attack can be definitely increased by proper measures undertaken prior to and succeeding operation. The most important advances in this field are those relating to a better understanding of fluid and electrolyte balances in the body and a better comprehension of shock. This book, intended primarily for surgical residents and practitioners, relates some of the basic problems of surgical care and practical methods of solving them. Besides chapters on fluid balance, transfusion, shock and general measures, specific practical details for handling situations arising during the surgical convalescence are dealt with. Generalities are usually dispensed with in favor of definite and practical detail. While agreement with various technics outlined will always be lacking, the methods suggested are generally acceptable and represent one good way of treating. References are plentiful and recent; illustrations are clear and profuse, indexing is thorough; all combine to make this book a welcome addition to the young surgeon's library.

Diseases of the Nose, Throat and Ear: A Handbook for Students and Practitioners. By I. Simson Hall, M.B., Ch.B., F.R.C.P.E., Surgeon to the Royal Infirmary, Edinburgh (Department for Diseases of Nose, Thront and Ear). Second edition. Cloth. Price, \$4.50. Pp. 446, with 74 Illustrations. Baltimore; William Wood & Company, 1941.

In this small volume, the second edition of a like handbook first published in 1937, certain chapters have been revised and rewritten to conform with modern advances in the science of otolaryngology. This effort is seen principally in references to the sulfonamide drugs and rhinologic therapeutics from the modern physiologic point of view. Considered as a "handbook for students and practitioners," as implied on the title page, it is a remarkably complete though brief summary of the specialty and as such should meet the purpose for which it was designed. Its extreme conciseness produces serious limitations to its use as an adequate guide to actual diagnosis and treatment, but its comprehensive brevity should make it an ideal refresher for undergraduates and practitioners.

Maude Abbott: A Memoir. By H. E. MacDermot, M.D., F.R.C.P. Cloth, Price, \$2.50. Pp. 264, with 11 illustrations. New York & Toronto: Macmillan Company, 1941.

The author of this memoir, who is the assistant editor of the Canadian Medical Association Journal, is to be commended on the simple manner in which he has presented the highlights of Dr. Maude Abbott's career. Dr. Abbott, who was one of the first woman doctors of Canada, gained a reputation which was justly earned. Naturally the book will hold extra pleasure for Canadian readers, but it will also hold much interest for any who pass along its pages. Not only does it depict the possibilities that lie in store for those who have the courage, loyalty, tolerance and vitality possessed by Dr. Abbott but it offers intimate glimpses into the habits of some of her colleagues. Some of these colleagues are internationally known. That the book offers amusing moments is to say the least. For example, Dr. Abbott was closely associated with the Osler Memorial

Volume, which appeared in 1926. During this association she was delayed many months in sending a manuscript for Dr. George Blumer's "Bedside Diagnosis." Considerable and spontaneously witty correspondence resulted between the two. Parts of these letters are reproduced in the book. The gem is Dr. Abbott's reference to Dr. Blumer's work as "Blumer's Bedtime Diagnosis," to which Blumer replied "The work doubtless has soporific qualities, but the correct title is "Bedside Diagnosis."

The Premature Infant: its Medical and Nursing Care. By Julius II. Hess, M.D., Professor and Head of the Department of Pediatrics, University of Illinois College of Medicine, Chicago, and Evelyn C. Lundeen, R.N., Supervisor, Premature Infant Station, Sarah Morris Hospital, Chicago. Cloth. Price, \$3.50. Pp. 309, with 74 Illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1941.

The Hortense Schoen Joseph Premature Station of Michael Reese Hospital has a record for saving the lives of premature infants somewhat better than that of most institutions concerned with this field. The record has been accomplished by the introduction of complete control of the environment, the maintenance of aseptic nursing care and the introduction of special technics for bathing, dressing, feeding and otherwise providing for the infant. In this book the physician who has had charge of this work and the nurse who has been responsible for the meticulous detail have cooperated. Indeed, the work itself is so impressive that it has now been related to the entire program for the care of the premature infant in Chicago. It represents a challenge to all others concerned with similar work.

The Postnatal Development of the Human Cerebral Cortex. Volume II: The Cortex of the One-Month Infant. By J. LeRoy Conel, Profesor of Anatomy, Boston University School of Medicine, Boston. Cloth. Price. \$8. Pp. 147, with 220 Hustrations on 108 plates. Cambridge: Rarrard University Press; London: Oxford University Press, 1941.

This monograph, the second of its kind by the author, describes in detail the cortex of the 1 month infant. It is beautifully illustrated and the printing is excellent. The author finds the brain of the 1 month infant to be much less gelatinous in appearance and firmer to the touch than the brain of the newborn. He states that the difference in consistency of tissues is clearly noticeable before and after fixation in formaldehyde. The contents of the book include sections on the lobus frontalis, lobus parietalis, lobus occipitalis, lobus temporalis, lobus insulae and rhinencephalon. This is a rare contribution and together with the first volume should be purchased by all neurologists, neurologic surgeons, pediatricians and neuroanatomists. It is a masterpiece.

Source Book of Medical History. Compiled with Notes by Logan Clendening, M.D., Professor of the History of Medicinc, University of Kansas, Kansas City. Cloth. Price, \$10. Pp. 685. New York & London: Paul B. Hoeber, Inc., 1942.

This volume includes historical notes by Dr. Clendening and actual reproductions of the original writings, which have achieved a place in the history of medicine in the form, however, of English translations. There is an extensive index, which will aid the physician in reference to the fields in which he is especially concerned. Previously works of a similar character by Camac and Major and the various volumes of selected readings have served as models for this volume, but the author has obviously been guided largely by his own interests. A special feature is the inclusion in this volume of quotations from literature not definitely medical as, for example, some of the writings of Molière, Macaulay and Le Sage.

Clara Barton: Daughter of Destiny. By Blanche Colton Williams. Cloth. Price, \$3.50. Pp. 468, with 31 illustrations. Philadelphia, New York & London: J. B. Lippincott Company, 1941.

This book will delight the lover of biographies. It is will written and almost brings to life the person of Clara Barton. The history of the beginnings of the American Red Cross and the long fight before the United States acceded to the treaty of Geneva is of particular interest at this time. Today, the Red Cross is taken for granted. No one questions its ability to relieve the suffering caused by disaster. Its place on the lattlefield is also an accepted fact. Clara Barton is portrayed as a wilful, stubborn person—in fact, just the type that was necestary to carry through such a difficult assignment. The lock should serve as an inspiration to the young student who would like to save humanity, as well as make excellent reading.

## Oueries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES THEN DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLI. ANONIMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST

#### BURNS BY PHOSPHORUS

To the Editor.--Can you give me any information concerning burns by white phosphorus (P4) and phosphorus trichloride (PCl2)?

J. J Reason, M.D., Carteret, N. J.

Answer.-White phosphorus ignites spontaneously in the air and burns gradually from the surface. It may give rise to serious burns, since even when embedded in the flesh it will continue to burn as long as air can reach it. According to Vedder (The Medical Aspects of Chemical Warfare, Baltimore, Williams & Wilkins Company, 1925, p. 194) first aid treatment is directed toward stopping the phosphorus from burning and toward removal of any of the substance remaining in the wound. The part is immersed in water or is irrigated, and any remainsponge held with forceps. The later treatment is the same as that for any other burn. Phosphorus trichloride is a liquid at ordinary temperatures, is noninflammable and gives off a toxic vapor. In the presence of moisture it is extremely hygroscopic and hydrolyzes rapidly, with the formation of hydrochloric acid. Its effect on the skin is not that of a true burn and is not specific for phosphorus but is that of the caustic or the corrosive action of a strong acid. The substance should be removed or neutralized by washing of the affected part with dilute alkali and the wound treated by measures appropriate to any other injury of like severity.

#### EXFOLIATION OF HANDS AND FEET

To the Editor —A man aged 43, a commercial airline pilot, complains of peeling of the skin on the ventral surfaces of the hands and feet. This has occurred in altacks yearly since 1935. The disturbance has always has occurred in arrocks, yearly since 1935. The distribution has olways been preceded by an acute respiratory infection, usually of a mild nature. The attack of peeling has never occurred at any other time than in the fall of the year, even though the patient may have colds during the other seasons. The hands are first affected, peeling of the epidermis starting at the finger tips and extending cephalad over the palms. After a week's interval the feet are affected in a similar manner. Several episodes of peeling may occur in these locations, after which the skin returns to normal and remains so until another cold develops in the ensuing fall. The patient takes no medication of any kind. There is no history of allergic phenomena affecting him or other members of his family. His general health is excellent. I can elicit no history of exposure of his skin to irritants or other substances during the foll months with the possible exception of the fact that he is accustomed to remove nightshade from his yard at this time of year. He does not wear gloves at any time. Physical examination discloses extensive peeling wear gloves at any time. Physical examination discloses extensive peeling of the epidermis, most pronounced at the finger tips extending up under the nail beds and cephalad to the wrists. There is no vesiculation, weeping or other eczematous reaction. During the present attack the skin of his feet has not yet become involved. He has a mild trichophytosis between the toes. No other physical abnormalities are discoverable. The blood Wassermann reaction and blood count are uninformative with the possible exception of a 4 per cent eosinophilia. The platelets appear larger than normal but number 540,000. Cutaneous tests with adaptive and trickophytical exception excepts for the forces. tests with oldiomycin and trichophytin are strongly positive for the former. Microscopic examination of scalings from the cutaneous lesions does not disclose the presence of fungi. Patch tests with the berry, leaf and flower of the nightshade are negative. Any suggestions as to further study or the possible cause of the difficulty would be appreciated.

M D , California

ANSWER-The commonest cause of exfoliation of the palms and soles is the disease called keratolysis exfoliativa. This was first described in the American literature and given its name by G. W. Wende in 1919 (Keratolysis Exfoliativa, J. Cutan Dis. 37:174 [March] 1919); but soon after Wende's article appeared J. E. Lane (Some Observations on Keratolysis Exfoliativa, ibid. 37:223 [April] 1919) pointed out that Carayon had described it in 1903 under the name desquamation estivale en aires des mains. Lane compares the two descriptions in an interesting engaged adds his own observations. tions in an interesting manner and adds his own observations. Mackee and Lewis (Keratolysis Exfoliativa and the Mosaic Fungus, Arch. Dermat & Syph. 23:445 [March] 1931) discussed its relation to fungous infections. They found foci of such infection in all their cases of keratolysis exfoliativa and they cited similar results of the study of such cases by others. A few have found fungi in the scales of the dry vesicles on the palms; but MacKee and Lewis did not. They found the the palms; but MacKee and Lewis did not. They found the mosaic fungus in these scales in potassium hydroxide prepa-

rations. They believed that keratolysis exfoliativa is a part of the picture of fungous infection in human beings. Others, however, still dispute the relation of the mosaic fungus or appearance to such infection. The toe infection in the case under discussion suggests such a relationship, and this is strengthened by the positive reaction to oidiomycin; but such infections are so common that they may be simply coincidental.

The strict periodicity of the phenomenon and the preceding mild disturbance of the upper respiratory tract suggests a much rarer condition, deciduous skin, shedding of the skin. P. E. Bechet (Deciduous Skin, Arch. Dermat. & Syph. 37: 267 [Feb.] 1938) reported a case, the second mentioned in the American literature since 1911. The first was the one reported by Howard Fox (Keratolysis Exfoliativa Congenita, ibid. 3:202 [Feb ] 1921) of a woman whose skin scaled off in large flakes during the whole year. Bechet's patient shed his skin during the whole summer, not at all during the rest of the year. Bechet, on the basis of reddening of the skin previous to exfoliation, considers cases previously reported as shedding of the skin, such as the one reported by Frank and Sanford, reviewed in the textbooks (Ormsby, O. S: Diseases of the Skin, ed. 5, Philadelphia, Lea & Febiger, 1937, p. 122) as scarlatiniform erythema rather than genuine shedding of the skin. He discusses the differential diagnosis between these. Weidman, in the discussion of Bechet's paper, suggests that genuine shedding may be a "phylogenetic phenomenon" like the shedding of the snake's skin. If the case described in the query is a genuine one of shedding of the skin it is extraordinarily limited.

## FAMILIAL AND HEREDITARY CATARACT

FAMILIAL AND HEREDITARY CATARACT

To the Editor—I am confronted with a rather puzzling medicosocial problem in 1933 I examined the eyes of a woman with congenital cataract. She had three children. a gurl, 13, who had cataract a boy, 10, who had cataract to some extent, and another boy, 15, who did not have cataract intimating that he was contemplating marriage. He fears that if he should become a father this taint might be transmitted to his children. He asks my advice as to whether he should undergo the operation of vasectomy to avoid this possible catastrophe. The family history, which I secured from a good friend who is the brother of the woman with cataracts, indicates that she and another brother are the only ones in a family of ten who were so afflicted. It is not even certain that the brother has cataract; it is known only that he goes about with his eyes half closed. He has and has had sufficient vision to enable him to drive a truck. It seems to me that this young man runs little risk of having children with congenital cataract and yet I think there is some risk. I should appreciate on opinion on this problem.

M.D., Missouri.

MD, Missouri.

Answer—From the family history given, which is unfortunately incomplete, it would seem as though cataracts were familial and hereditary in this family. There is no question that cataract can be transmitted in families, as shown in the accompanying table. Green (26th Annual Meeting of the American Ophthalmological Society, 1890, p. 724) reported one family in which twenty-one members were affected. Nettleship (Royal London Ophth Hosp, Rep 16, part 3) reported on the occurrence of senile and juvenile cataract in one hundred and sixty-seven families; from three to six generations were affected; in one family thirty members in four generations showed the defect

Millikin (Am. J. Ophth., March 1903) reported 14 cases of hereditary cataract in three families.

Heredity of Cataract*

			Children Affected				
Type of Heredity	Number of Families	Total Children	Number	Per Cent of Total			
Direct heredity, both parents af fected	- 3	15	9	601			
Direct heredity, one parent af fected	301	1,012	599	53			
Indirect heredity	. 29	107	45	42f			
Collateral heredity	. G3	312	193	62			

^{*} Extract from table the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon

Nettleship and Ogilvie (Tr. Ophth. Soc. U. K. 26:191, 1906) studied the Coppock family and reported 20 cases in four generations. Mann (Developmental Abnormalities of the Eye, Cambridge, University Press, 1937, p. 343) stated that in the Coppock family "inheritance was always direct; i. e, a parent of the affected individual always showed the defect and unaffected cases never transmitted to their offspring (the 'once free always free' rule)."

According to Waardenburg (Modern Trends in Ophthalmology, 1940, p. 101) it is now established that both sex chromosomal (gonosomal) and autosomal genes are involved in ocular disorders, but it is not known to which of the twentythree autosomes of the mature human gametes these characters belong. He also reports that a case of congenital total cataract perhaps belonged to the sex-linked inheritance which is due to recessive genes localized in the X chromosome.

Judging from the data collected by Mann there is evidently greater than normal risk of this marriage producing children with hereditary cataract. It would certainly be the part of wisdom for this young man to refrain from having children,

#### WASSERMANN TEST IN HUSBAND AND WIFE

To the Editor:—A woman pregnant for the first time has a negative Wassero the Editor:—A woman pregnant for the first time has a negative Wassermann reaction and no clinical evidence of syphilis. Her husband had a Wassermann test done, and the result was 4 plus. This was verified in two other laboratories. A second Wassermann test for the woman gave negative results. She was given 3 Gm. of neoarsphenamine, and a week later the Wassermann reaction was negative. Neoarsphenamine injections are being continued irrespective of the negative Wassermann reaction. Williams, in his Obstetrics, cites a case in which superimposed pregnancies (from different fathers) resulted in one syphilitic child and one free of syphilis, and it was determined that one father had syphilis and the other did not. The husband of the prospective mother has no clinical evidence of syphilis and gives no history of an initial lesion. Is the antisyphilitic treatment of the mother correct? Should it be continued after the child is born even though the Wassermann reaction is negative? Should the child receive any antisyphilitic treatment? Should negative? Should the child receive any antisyphilitic treatment? Should future pregnancies be inadmissible before the father is Wassermann negative? T. J. English, M.D., Philadelphia.

Answer.—The information furnished is insufficient. Nothing was stated about the history of the husband's case, nor was it stated whether the cerebrospinal fluid has been tested serologically. Every attempt should be made to find out how long the husband has had syphilis. It is possible that he has old latent syphilis that is no longer transmissible.

Under the circumstances, it was not justifiable to start the wife on the therapy until one had determined the status of the husband. To have done so creates an awkward situation. The usual feeling is that once the patient is started on treatment for syphilis this must be continued and be given in the same manner as if the patient had acquired syphilis.

In this case, however, as far as is known, there is not the least evidence that the patient has had syphilis, and if it were not that she is pregnant the recommendation would be to stop all treatment at once and perform a serologic test once a month. Since she is pregnant, however, it would be advisable to have a consultation with an authority on the subject and to attempt to find out as nearly as possible how long the patient's husband has had syphilis, for if he really has latent syphilis all therapy should be discontinued.

Naturally the child should not receive treatment for syphilis

if it does not have the disease.

The answer to the last question will depend much on how long the father has had syphilis and on the result of careful physical examination and laboratory studies.

#### GASTRIC ULCER AND ANGINA PECTORIS

To the Editor:—Is there any evidence associating angina pectoris with gastric ulcer? Is there any evidence of ulcer being the cause of angina? If the two conditions were present in the same patient would the gastric ulcer aggravate the angina?

R. E. Fowler, M.D., Harrison, Ark.

Answer.-There is no evidence that gastric ulcer and angina pectoris occur together with any unusual frequency. ulcer is a relatively common disease; the simultaneous presence of angina pectoris and gastric ulcer is so rare as to preclude any special association of these two disorders.

Both the heart and the stomach are supplied by the vagal and the sympathetic systems, and disturbances in one organ may be reflected through nerve pathways to the other. It may be clinically difficult to recognize or demonstrate the presence of gastric disease simulating angina pectoris or to establish the cardiac basis for distress referable to the epigastrium or the upper part of the abdomen. Occasionally, however, disease may be found to exist in both the heart and the stomach, and attempts be tound to exist in both the neart and the stomach, and attempts have been made in such cases to establish an etiologic relationship between the two diseases. Gilbert, Fenn and LeRoy have demonstrated that distention of the dog's stomach produces coronary vasoconstriction. Hinrichsen and Ivy, on the other hand, failed to demonstrate this in earlier work. In similar constituents on man employing artificial methods of greating disconstriction man employing artificial methods of greating disconstriction. nand, raised to demonstrate this in earner work. In similar experiments on man, employing artificial methods of gastric distention, Morrison and Swalm expressed the belief that they could demonstrate the reflex nature of attacks of angina pectoris in patients with gastrointestinal disturbances. Despite these

investigations there is no satisfactory proof that a gastric ulcer may be the sole cause of true angina pectoris or that ulcer may play even an indirect part in the anginal pain. Cases have been reported in which treatment of the gastric lesion has resulted apparently in alleviation of the anginal attacks. Eradication of focal infection has been said to accomplish the same result.

References:

Morrison, L. M., and Swalm, W. A.: Role of the Gastrointestind Tract in Production of Cardiac Symptoms, The Journal, Jan. 20, 1940, p. 217.

Wolffe, J. B., and Samuelson, Anna: The Gastrointestinal Factors in Angina Pectoris, Rev. Gastroenterol. 2: 208 (Sept.) 1935.

Hinrichsen, Josephine, and Ivy, A. C.: Effects of Stimulation of Visceral Nerves on Coronary Flow in Dogs, Arch. Int. Med. 51: 932 (June) 1933.

Gilbert, N. C.; Fenn, G. K., and LeRoy, G. V.: The Effect of Ditention of Abdominal Viscera, The Journal, Dec. 7, 1940, p. 1862.

#### HISTAMINE DESENSITIZATION

To the Editor:-Will you kindly let me know the details of the technic for histamine desensitization in cases of general allergy?

M.D., New York.

Answer.—Histamine injections are seldom useful or indicated in cases of general allergy. It may be helpful in occasional cases of urticaria and of some types of physical allergy, particularly intolerance to cold. It is not at all certain that histamine injections result in tolerance to larger doses of histamine. The probable action of histamine treatment is an exhaustion of the reactive mechanism of tissue cells. One of the most common technics of histamine treatment consists in giving small doses of the chemical at frequent intervals, a solution of a histamine salt, such as the phosphate, being used. A dilution of 1:5,000 may be the initial strength used. The dose of 0.1 cc. of this solution can be increased by additional increments of 0.1 cc. each time. Injections are given at first twice daily, later once daily and still later twice weekly. When a dose of about 0.5 to 1 cc. of a 1:2,500 dilution is reached the characteristic histamine reactions occur, consisting usually of flushing of the face, headache and possibly palpitation, and the dose should be slightly decreased. Treatment is to be given, as a rule, for several weeks. Another method of histamine treatment consists in giving 0.5 to 1 mg. of the drug in 500 to 1,000 cc. of an isotonic solution of sodium chloride or of a 5 per cent dextrose solution intravenously by the drip method, about two hours being required to complete the injections. This can be done once daily for several times. daily for several times.

SODIUM BICARBONATE THERAPY AND RENAL STONES To the Editor:—Is there any relationship between the taking of sediam bicarbonate and other alkalis for gastric disorders and the formation of M.D., New York.

Answer.-In a discussion of the formation of renal stones from the ingestion of alkalis used in the treatment of stomach disorders one must exclude secondary calculi or those due to some preexisting pathologic lesion of the urinary tract.

Primary renal calculi are those formed in an apparently healthy urinary tract. Randall has pointed out that there is a precalculous lesion found in a renal papilla which, when it is bathed in colonia union found in a renal papilla which, when it is bathed in calycine urine, forms the nidus for all primary calculi. He referred to this as a calcified plaque which has formed as a reparative process.

A person who uses alkalis for some gastric disorder or for another reason will have an abnormally greater concentration of these substances in the urine than one who does not. With the presence of a precalculous lesion in a kidney there is a greater chance for the formation of calculi in alkali users.

It has been presumed by some investigators that the constant irritation of the renal calices by the phosphatic deposit leads to the exudation of a little fibrin, which cements the calculus. Other writers have expressed the belief that there is little relationship, if any, between the ingestion of alkalis and the formation of renal calculi.

One with any important amount of experience in the handling of patients with urinary calculi is impressed by the high incidence of urinary stones in patients under medical management for gastric ulcer. Regardless of statistics or articles written to discovery the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contr prove this statement, almost all observers in the field consider the foregoing statement to be an absolute fact.

References:

Randall, Alexander: The Etiology of Primary Renal Calculus, Irieral Abstr. Surg. 71: 209, 1940; in Surg., Gyncc. & Obst., Sequence

Mostr. Surg. 71: 209, 1940; in Surg., Opinio C. 21940.

Moore, Thomas: Renal Calculi Following Alkali Therapy, Larcet 2: 1118 (Nov. 25) 1939.

Kretschmer, H. L., and Brown, R. C.: Do Alkalis Used in the Terapy, ment of Peptic Ulcer Cause Kidney Stones? The Journal, Oct. 14, 1939, p. 1471.

# The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 118, No. 17

COPURIGHT, 1942, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS

April 25, 1942

THE USE OF SULFADIAZINE AND SULFATHIAZOLE IN DIA-BETES MELLITUS

> CHARLES W. STYRON, M.D. HARRY BROMLEY, M.D. HOWARD F. ROOT, M.D. BOSTON

Treatment of 100 consecutive diabetic patients by means of sulfathiazole and sulfadiazine is here reported with respect to the toxicity of these drugs in diabetes mellitus, their effect on the control of diabetes and the efficiency of the treatment in various types of infection.

Sulfanilamide became generally available in 1937. It was found to be effective against beta hemolytic streptococci, meningococci, urinary tract infections, trachoma, chancroid and lymphogranuloma venereum. To a less extent it was effective in gonorrheal infections, undulant fever and actinomycosis. In 1939 sulfapyridine was widely and effectively used in pneumococcic infections and gonorrheal infections. In 1940 sulfathiazole proved more effective and less toxic in staphylococcic infections, and in 1941 sulfadiazine was introduced as even more efficient against all organisms than the drugs mentioned and, in addition, it was found active in Friedlander infections.

Recently Beardwood and Rouse 1 attributed three cases of diabetic acidosis to the administration of sulfanilamide. Although the presence of acidosis does not necessarily imply the ketosis found in the diabetic with lowered carbon dioxide content of the plasma, the question arises, nevertheless, whether the sulfonamides can be used safely in the treatment of diabetic patients with infections without further serious disturbance of diabetic metabolism. Second, it may be asked whether dosages effective and safe in the nondiabetic may be used with equal effect and with equal safety in the presence of diabetes.

There are many references which bear on the changes encountered in the acid-base balance when sulfanilamide is given. A review of some pertinent reports in this respect may serve to emphasize the necessity for considering the status of the acid-base balance of patients who receive chemotherapy. If such consideration is important in the nondiabetic, then it is even more important for the diabetic, in whom acidosis may be easily precipitated.

From the George F. Baker Clinic, Elliott P. Joslin, medical director, New England Deaconess Hospital

Beardwood, J. T., and Rouse, G. P. Diabetic Acidosis, J. A M A 117: 1701-1704 (Nov. 15) 1941

Southworth 2 showed a fall in carbon dioxide content of the plasma varying from 1.9 to 27.3 volumes per cent of 15 patients given a single test dose of sulfanilamide varying from 2.7 to 6.0 Gm. The fall occurred during treatment and up to forty-eight hours after the sulfanilamide was given. Basman and Perley³ showed a prompt change in the reaction of the urine from acid to strongly alkaline while sulfanilamide was being given. Marshall, Cutting and Emerson produced severe acidosis in dogs by giving doses of 1 to 2 Gm. of sulfanilamide per kilogram. Hartmann, Perley and Barnett 5 presented evidence to show that the lowered blood carbon dioxide and increased alkalinity of the urine were explained on the basis of primary hyperventilation which produced alkalosis. Beckman, Rossmeisl, Pettengill and Bauer, however, were able to demonstrate that the entrance of bicarbonate into the urine preceded hyperpnea and that, therefore, hyperpnea must be considered a secondary event dependent on the acidosis.

#### ANIMAL EXPERIMENTS

In studies of the effects of the sulfonamides on animals, certain facts have been reported which again may be useful in anticipating changes to which the patient with diabetes is vulnerable. Feinstone and his associates 7 found that sulfadiazine is less toxic for mice than sulfapyridine or sulfathiazole. When comparison was made between the effects of the prolonged administration of the three drugs in monkeys, sulfadiazine seemed to produce the least evidence of tissue damage. Sulfadiazine was found to be less conjugated in the blood stream, and the acetylated drug was excreted rapidly in the urine. Since the acetyl derivative is soluble in urine, it was less likely to produce urinary complications. In the same study Feinstone and his associates demonstrated that sulfadiazine in doses of 2 Gm. per kilogram daily produced pathologic changes in the tissues of animals, confined for the most part to the kidneys. The organs of animals receiving only 0.5 Gm. per kilogram or less showed normal organs The blood concentration found in acute at necropsy.

Associated with the Administration of (Prontylin), Proc. Soc Exper. Biol &

^{3.} Basman, J, and Perley, A M. Report of Patients Treated with Sulfanilamide at the St Louis Children's Hospital, J. Pediat 11:212 237 (Aug.) 1937.

4. Marshall, E. K., Jr., Cutting, W. D., and Emerson, Kendall, Jr. The Toxicity of Sulfanilamide, J. A. M. A 110:252 257 (Jan. 22) 1938

¹⁹³⁸Hartmann, A. P., Perley, Anne M., and Barnett, H. L. A. Study of Some of the Physological Effects of Sulfanilamide. J. Changes in the Acid Base Balance, J. Clin. Investigation 17: 465-472. (July) 1938.

6 Beckman, W. W., Rossmersl, E. C.; Pettengill, R. B., and Bauer, W.: Study of Effects of Sulfanilamide on Acid Base Metabolism, J. Clin. Investigation 19: 635-644. (July) 1940.

7. Femstone, W. H.; Williams, R. D.; Wolff, R. T.; Huntington, E., and Crossley, M. L. The Toxicity, Absorption and Chemotherapeutic Activity of 2 Sulfanilamidopyridine (Sulfadiazine), Bull. Johns. Hogkins. Hosp. 67: 427-456, 1940.

toxic deaths in mice averaged between 170 and 200 mg. per hundred cubic centimeters. Death occurred in eight to twenty days. In mice acute toxicity could not be brought about by oral administration, since blood concentrations did not reach a high enough level. The concentration of the drug in the blood, determined largely by the dosage, seemed closely related to the occurrence of pathologic changes, a point of prime importance in clinical usage.

Greisheimer and his associates 8 studied the effect sulfanilamide, sodium sulfapyridine and sodium sulfathiazole on the blood sugar and liver glycogen of rats which had been fasted and of rats which received dextrose after a fifteen hour fast. Three hours after drug administration the animals were killed. A dose of 1.8 cc. of 1 per cent sulfanilamide solution per hundred grams of body weight affected the blood sugar in neither group of animals. A decrease in the liver glycogen occurred in the fasting rats and a rise in the liver glycogen occurred in those which received Solutions of sodium sulfapyridine varying dextrose. from 7.5 to 10 per cent administered in doses of 1 cc. per hundred grams of body weight lowered the liver glycogen and raised the blood sugar of the rats. Sodium

Tyble 1.—Results of Treatment of One Hundred Diabetic Patients with Sulfadiazine and Sulfathiasole

Diagnosis	Number	Improved
Foot infection	52	49
Cystitis or pyelonephritis.	20	28
Pneumonia	15	13
Carbunele.	4	4
Infected finger .	3	1 saved, 2 ampu tations
Suppurative adenitis .	3	3
Miscellaneous	14	13
Total diagnoses	111	103
Deaths .		nong 26 amputa is of the leg)

sulfathiazole in the same amounts had little effect on the liver glycogen but raised the blood sugar. It was concluded from these studies that sodium sulfapyridine inhibits glycogen formation and storage. Wertenberger  o  reported a rise in the blood  $p_{\rm H}$  of rats from 7.52 to 7.66 and from 7.53 to 7.60 respectively after intraperitoneal injections of the sodium salts of sulfapyridine and sulfathiazole. Their data support the view that the high alkalinity of these compounds tends to exhaust the buffer capacity of the body and to produce alkalosis. The effect of infection in the presence of lowered liver glycogen was emphasized by Richardson,10 who found that in normal rabbits and depancreatized cats there existed a correlation between the amount of glycogen present in the liver and their resistance to the intravenous injection of staphylococci. He also found a lowered titer for agglutinins when poorly nourished cats received typhoid vaccine.

Joslin and his associates 11 state that "the causes for lowered resistance to infection in diabetes are still not apparent. It is certainly related to the malnutrition, lowered glycogen content of the liver, dehydration and acidosis which characterize the patient with poorly controlled diabetes. As to the exact mode and site of operation of these factors, little information is available.

Climenko and his associates 12 showed that continued administration of sulfathiazole to dogs for ten days in doses of 250 mg. per kilogram daily produced impairment of renal function, as evidenced by elevation of the blood urea nitrogen level and diminution in the urea clearance and excretion of phenolsulfonphthalein The impairment was reversible. They demonstrated no effect on oxygen capacity or the oxygen and carbon dioxide content of the blood. No effect on liver function was indicated by the bromsulphalein test.

Long, Bliss and Ott 13 in experimental infections in mice concluded that the inferiority, with equivalent blood concentrations, of sulfadiazine to sulfathiazole m pneumococcic infections is offset by the relative ease with which higher blood concentrations are attained and maintained with sulfadiazine. They found that mice tolerated levels of 25 mg. per hundred cubic centimeters for periods of two weeks without apparent ill effects and without damage to the kidneys, liver or spleen.

Numerous reports deal with the precipitation of acetylated drugs in the kidneys, ureters and bladder. To date little demonstrable damage has taken place in the liver after administration of sulfathiazole or sulfadiazine

#### CLINICAL DATA

In the course of the past year we have used sulfadiazine and sulfathiazole in over 100 cases of infection in diabetes. The patients ranged in age from 7 years to 86 years. One patient was 7 years old, 8 were from 15 to 30, 15 from 30 to 50, 18 from 50 to 60 and 58 over 60 years of age. Duration of diabetes varied from one month to thirty-three years. Eight patients had diabetes less than a year, 17 from one to five years, 29 from five to ten years and 46 over ten years' duration. Eighteen of the latter group had diabetes longer The patients had a variety of than fifteen years. In comparing cardiovascular and renal diseases. results obtained in diabetic with nondiabetic patients it is possible that some diabetic patients may come for treatment in a relatively early stage of an infection but that this may be offset by the well known tendency for pyogenic infections to extend rapidly in the diabetic. Actually no clear distinction is possible in this respect between diabetic patients of this series and the nondiabetic

In table 1 a total of one hundred and eleven infections in diabetic patients is summarized with respect to improvement following the use of sulfadiazine and sulfathiazole. Among the 100 diabetic patients four deathoccurred. Only 15 patients with pneumonia were included in the series, of whom 1 died. The other patient with "unimproved" pneumonia was a woman aged 27 who had a very stormy clinical course and who finally improved with drainage of a lung abscess

Our results compare satisfactorily with those of Flippin and his associates." who in April 1941 reported

⁸ Greisheimer, E. M., Hafkesbring, R., and Magalhies, H. Blood Sugar and Liver Glycogen After Single Doses of Sulfanilamide, Sodium Sulfapiridine and Sodium Sulfathizzole, M. Times 69: 170-173 (April)

<sup>1941.

9.</sup> Wertenberger, G E: PH Changes in the Blood Following Sulfa 9. Wertenberger, and Sulfathiazole Administration, Am J Physiol 133:488 pyridine and Sulfathiazole Administration, Am J Physiol 133:488 (June) 1941.

⁽June) 1941
10 Richardson, R: Relation of Tissue Glycogen and Blood Chemistry Batterind Dissemination, Antibodi Formation and Survival After Infection in Disbetes, J. Clin. Investigation 19: 219 250 (Jan ) 1940
11. Joslin, E. P.; Root, H. F.; White, Priscilly, and Marble, A. The Treatment of Diabetes Mellitus, ed 7. Philadelphia, Lea & Febrger, 1940, p. 457.

¹² Climenko, D. R., McChesney, E. W., and Messer, F. Commendation of Sulfathiazole in Renal and Henrice Function in Dox, Proc. Soc. Exper. Biol. & Med. 46: 124-128 (Jan.) 1941.

13 Long, P. H., Bliss, Eleanor A., and Ott, E., Studies on Statistics of Large and Staphylococcal Infections in Mirc., Bull. John High. Preumecoccal and Staphylococcal Infections in Mirc., Bull. John High. 14 Flippin, H. F., Rose, S. B., Schwartz, Louis, and Dorm., A. H. Sulfadiazine and Sulfathiazole in the Treatment of Preumerican Preumonia, Am. J. M. Sc. 201: 585-592 (April) 1941.

200 cases of pneumococcic pneumonia with twentyeight deaths. Finland, Strauss and Peterson 15 used sulfadiazine in treating 178 patients with pneumococcic pneumonia, of whom 19 died. Previously one hundred and twelve deaths occurred in 687 patients treated with sulfapyridine or sulfathiazole.16 More recently Billings and Wood 17 reported the use of sulfadiazine alone in 75 cases of pneumococcic pneumonia with but one fatality. In treating critically ill patients they administered sodium sulfadiazine intravenously in order to obtain early effective blood levels. They felt that sulfadiazine is the drug of choice in treating pneumococcic pneumonia.

Of the 52 foot cases 49 improved, but surgical and diabetic treatment given simultaneously may have been responsible. We had eighteen improved urinary infec-One unimproved patient had hydronephrosis and megaloureter requiring nephrectomy. Yet he continued to have some pyuria from the other kidney, in which stones were present. Improvement later occurred and at present an operation on the other kidney is contemplated. The second was a patient with a prostatic abscess who did later improve with incision and drainage of the abscess. The 4 cases of carbuncle, 3 of finger infections and 3 of suppurative adenitis also represent combined surgical and chemical treatment in which the favorable outcome can only in part be attributed to the drugs. In the miscellaneous group was 1 patient with a pyogenic brain abscess and associated meningitis, who died. Also were included ulcers of the leg, hemolytic Staphylococcus aureus septicemia, abdominal wall infection, lung abscess, furunculosis, cheek abscess, upper respiratory infection and postoperative pelvic cellulitis. The case of Staphylococcus aureus septicemia is the second with repeatedly positive blood cultures in which recovery occurred in our experience with sulfadiazine treatment.

As regards chronic bacterial infections which require prolonged treatment, Trevett, Nelson and Long 18 consider sulfadiazine the drug of choice.

It seems evident that one cannot expect chemotherapy to cure necrotic lesions such as carbuncles and gangrene in the diabetic. However, it seems to control extension of pyogenic infections and to have special advantages in pneumonia and particularly in genitourinary infections, to which the diabetic are notoriously vulnerable.

The organism in the pneumonias was predominantly the pneumococcus and that in the foot infections predominantly the hemolytic staphylococcus, with a few cases in which nonhemolytic staphylococci were recovered. Escherichia coli was recovered in practically all the urinary infections. In the miscellaneous cases the hemolytic Staphylococcus aureus was invariably found.

The pneumonia patients were usually given an initial dose of 2 or 3 Gm. of either drug followed by 1 Gm. every four to six hours until the temperature remained normal for twenty-four to forty-eight hours. The total dosage varied from 53 Gm. taken in nine days to 12 Gm. taken in two days. The drug levels varied from 1.6 to 11.4 mg. per hundred cubic centimeters but averaged 5 mg. per hundred cubic centimeters.

The patients with foot infections were given as a rule an initial dose of 3 Gm. of either drug and maintained with 1 Gm. every four or six hours. Total dosage varied from 12 Gm. given in the forty-eight hours preceding major amputation to 113 Gm. over a period of twenty-two days. The drug levels varied from 1.3 to 18.9 but averaged 6.3 mg. per hundred cubic centimeters.

Patients with urinary infections received smaller doses of the drug but were oftentimes given treatment over a much longer period of time. Frequently a patient with a urinary infection was given 1 Gm. every four to six hours for the first twenty-four hours. The dose was then ordinarily reduced to 0.25 or 0.5 Gm. every four hours. One patient received 51 Gm. given as

Table 2—Comparison of Effects of Sulfadiazine and Sulfathiazole on Two Hundred Nondiabetic 14 Compared with One Hundred Diabetic Patients

		Sulfad	lazine	Sulfathiazole		
		Per Cent Non- diabetic	Per Cent Dia- betic	Per Cent Non- diabetic	Per Cent Dia- betic	
Nausea		10	12	21	18	
Vomiting		5	10	9	11	
Hematuria (microscopie) .		4	2	9	0	
Dermatitis		1	0	2	7	
Conjunctivitis		0	0	1	7	
Psychoses		7	5	3	2	
Fever		1	0	2	5	
Leukopenia (5,000)		2	0	2	0	
Nonprotein nitrogen increased .			2		0	
Neutropenia (40%)		0	0	1	ō	
Anemia.	•		5		9	
Crystals		29	49	70	71	
Incidence of toxic effects			23	••	46	
Deaths		11	5	17	4	

0.5 Gm. five times a day. Many patients were sent home on small doses of sulfadiazine or sulfathiazole (e. g. 0.5 Gm. three times a day) and were followed in office visits. Blood levels varied from 0.6 to 15.0 mg. but averaged 3.5 mg. per hundred cubic centimeters.

As a rule in the miscellaneous cases it was necessary to give doses approximating those in the foot cases to maintain relatively high blood levels. The highest total dosage was given to a patient with Staphylococcus aureus septicemia. She received 113 Gm. of sulfadiazine as 1 Gm. five times a day over a period of twentytwo days. During this time nausea and vomiting were the only toxic symptoms encountered. The blood level in this case varied between 8 and 12.6 mg. per hundred cubic centimeters. The same patient later received 45 Gm. of sulfadiazine given as 1 Gm. four times a day. Again nausea and vomiting were the only symptoms of toxicity. The levels of blood sulfadiazine in the second course of treatment ranged from 5.1 to 14.1 mg. per hundred cubic centimeters.

Toxic symptoms in diabetic patients appear with nearly the same frequency as in the nondiabetic patients of Flippin 14 and of Finland.15 Finland, Strauss and Peterson published a table of toxic symptoms occurring among 446 patients treated with sulfadiazine in which the toxic reactions approximate those of Flippin and

¹⁵ Finland, Maxwell, Strauss, Elias, and Peterson, O L Sulfadiazine Therapeutic Evaluation and Toxic Effects on 446 Patients, J. A M. A 116: 2641 2647 (June 14) 1941.

16 Finland, Maxwell, and Strauss, Elias Treatment of Pneumo coccic Pneumonias with Sulfappridine, Sulfathiazole and Serum Analysis of the Results of Specific Therapy at the Boston City Hospital from July 1919 Through June 1940, Ann. Int. Med 14: 1184 1198 (Jan) 1941 17. Billings, F. T., Jr., and Wood, W. B., Jr. Studies on Sulfadiazine, III. The Use of Sulfadiazine in the Treatment of Pneumococcal Pneumonia, Bull Johns Hopkins Hosp 69: 314-326 (Oct.) 1941 18. Trevett, G. I.; Nelson, R. A., and Long, P. H. Studies on Sulfadiazine III. The Clinical Use of Sulfadiazine in the Therapy of Bacterial Infections Other Than Pneumonia, Bull Johns Hopkins Hosp 69: 303 313 (Oct.) 1941.

his associates. They also reported ureteral colic and gross hematuria in a patient with sulfadiazine on the seventeenth day of treatment. At the time the blood level was 19.8 mg. The anuria which developed was relieved by catheterization and pelvic lavage. A case was reported by Quick and Lord 19 of acute hemolytic anemia following the administration of sulfathiazole. A youth aged 19 received 10 grains (0.65 Gm.) of sulfathiazole every four hours, and after 70 grains (4.55 Gm.) jaundice appeared. The red blood count dropped to 840,000 and the icteric index rose to 16.5. There was associated azotemia and hypertension. This case illustrates the comparatively infrequent occurrence of severe toxic effects following moderate dosage. table 2 the frequency of toxic symptoms in the nondiabetic series of Flippin, Rose, Schwartz and Domm 14 is compared with the occurrence of such symptoms in 100 diabetic patients. Although vomiting, dermatitis and conjunctivitis appear rather more frequently in the diabetic, hematuria was much less frequent. Sulfadiazine is less toxic than sulfathiazole in our group of patients. We have all been impressed with the lack of severe symptoms of toxicity encountered, when constant attention is given to early symptoms and to their prevention by the maintenance of a urinary output of 1.500 cc. daily. There were no cases of gross hematuria, and only 2 patients showed an increase in nonprotein nitrogen due to glomerulonephritis in 1 and severe toxenia from a foot infection in the other. One patient had abdominal pain, associated nausea and vomiting and a level of sulfadiazine of 25.3 mg. per hundred cubic centimeters in the blood but recovered promptly on omission of the drug.

The smallest dose of sulfadiazine causing reaction was 12 Gm. taken over a period of three days, whereas

TABLE 3 .- Chemotherapy in Fifty-Two Diabetic Foot Infections

	Dorsalis Pedis Pulsation				
~	Palpable		Nonpalpable		
	Num ber	Per Cent	Num ber	Per Cent	
Cases	20	39	32	61	
Major amputation .	ង	15	23	72	
successful local amputation or drainage.	17	85	7	23	
Amputation refused	0	0	1*	3	
Amputation planned	D	Đ	1*	3	
Denths	0	0	3	9	

^{*} Patients died

in the case of sulfathiazole the smallest dose was 13 Gm. in four days. A few patients showed nausea and vomiting on 2 Gm. a day. One patient had nausea and anemia on 29 Gm. taken over a period of 15 days. Only in 2 cases was it necessary to omit sulfadiazine. The degree of conjugation is evident by the percentage of cases showing crystals in the urine. In summary, 46 per cent of the diabetic patients receiving sulfathiazole and 23 per cent of those treated with sulfadiazine showed some mild toxic effects.

### FOOT INTECTIONS

In the study of these 52 cases of diabetic foot infections in which either sulfadiazine or sulfathiazole was administered, it is evident that the blood supply

to the foot is of primary importance. Therefore in table 3 these 52 cases are divided into two groups, one consisting of 20 cases in which the dorsalis pedis pulsation was felt, the other of 32 cases in which no dorsalis pedis pulsation could be palpated. The outstanding facts were that in the first group with palpable dorsalis pedis pulsations major amputations were necessary in only 15 per cent of the group, whereas successful local amputation or drainage was accom-

Table 4—Effect of Chemotherapy on Insulin Dosage in One Hundred Cases of Diabetes

1 Insulin	mereased								45
Insulin	decreased remained equal to c		dise	 barge	dos	e	•	•	11   21   50 17

plished in 85 per cent. On the other hand, in the group without palpable pulsations in the feet major amputations were required in 72 per cent of the cases and advised in 6 per cent, leaving only 22 per cent in which successful local amputation or drainage was done. Therefore, though it has seemed that the use of these drugs is advantageous in preventing the extension of acute infection, they are not and should not be used except with constant supervision of experienced surgical consultants. Indeed, it is not only obvious that chemotherapy does not in such cases provide a substitute for surgery, but actually there is genuine danger that dependence on chemotherapy lead to such delay that the

The following is a case in point:

A housewife aged 61, who had had diabetes of twenty-two years' duration, developed a small lesion on the dorsum of the third right toe two weeks prior to admission. Treatment had been administered locally without response, and gangrene developed in the toe. On admission lymphangitis had extended on the dorsum of the foot to the ankle. The patient was immediately placed on sulfadiazine, 6 Gm. daily. Local incision and dramage with disarticulation of the toe were performed The patient had a moderate fever from the time of admission On the third day of chemotherapy nausea and vomiting developed and the temperature rose to 101 F. At this time the sulfadiazine level was 138 mg. per hundred cubic centimeters and the nonprotein nitrogen of the blood 27 mg. per hundred cubic centimeters. The diabetes was under good control Sulfadiazine was discontinued because of nausea and vomiting On the fourth day the patient appeared generally improved On the fifth day, however, she suddenly developed rapid pulse, cough, and dyspnea with numerous bilateral pulmonary rales which, after x-ray examination, was thought to be consistent with bronchopneumonia. The nonprotein nitrogen was 70 mg per hundred cubic centimeters and the sulfadiazine fevel 43 mg It was felt that a guillotine operation should be performed, but the patient's condition obviated operation. She died a few hours later.

Had the patient been treated without regard to chemotherapy and a guillotine operation done early, perhaps she would not have died. In such case, choice of procedure may be most difficult and hazardous. On the one hand, chemotherapy may in some instances prevent extension of infection and vascular thrombosis, thereby protecting the circulation to the part. On the other hand, reliance on chemotherapy may lead to delay, permitting embolism or other complications which may prevent surgery entirely. Table 3 illustrates the great difference between local surgery in

^{19.} Quick, E. D., and Lord, F. D.: Acute Hemoletic Anemia Following Sulfathiazole Administration, J. A. M. A. 117: 1704 1706 (Nov. 15) 1941.

patients with good and poor circulation. The fact that no amount of drug therapy can make up for deficient circulation is evident.

EFFECT OF CHEMOTHERAPY ON DIABETIC CONTROL

The effect of sulfadiazine and sulfathiazole on the control of the diabetes during the course of infection may be estimated in many ways as, for example, by changes in the blood sugar or in the amount of dextrose that is excreted in the urine, but one of the best indications is the effect on the insulin requirement. The insulin dosage of these patients varied from none to 90 units. Twenty-two patients required less than 10 units, 19 from 10 to 20 units, 31 from 20 to 40 units, 24 from 40 to 60 units, 2 from 60 to 80 units and 2 above 80 units. This requirement was based on the discharge dosage of insulin. In table 4 are summarized the changes in the insulin dosage during treatment of 100 diabetic patients in this series. It is seen that in 45 cases the insulin dose was somewhat increased, the increases being small as a rule, but in a few cases were as great as 50 to 60 units and in 1 case 100 units. In 55 cases no evidence of an increased requirement for insulin occurred. Thus, in 14 cases the insulin dose decreased, probably as a result of improvement in the infection. In 24 cases the insulin dose remained

Table 5—Effect of 4 Gm. of Sulfadiazine on the Carbon
Dioxide Content of the Blood Plasma

Time it Hours	1		CO2 Content of Plasma, Vols. %		
0	16 units of er	ystalline insulir	and suppe	r	
1			58	0	278
	4 Gm of sulf	adiazine by mo	uth		
2			54	11	267
3			59	14	190
4			<b>ə</b> 8	2 4	148
5			58	80	82
12			57	73	125
A won	ian aged 71		diabetes, foot	1 year	Infected gangren

the same, and in 17 cases the amount of insulin required during the period of drug administration was equal to or less than the amount of insulin required on final discharge from the hospital.

Diabetic control is manifestly difficult in the presence of infection. This fact is so axiomatic that the progress of infection is easily followed by the manner in which the diabetes behaves. A man aged 40 in our series, who had a carbuncle, required 100 units of insulin daily for control. Yet later the blood sugars were normal and the urine was sugar free without insulin. It would seem, however, that chemotherapy aids in the control of diabetes by controlling infection, and this is borne out by the fact that only 45 per cent of the patients required more insulin in the presence of an infection. Determination of the effect on insulin dosage of a patient under treatment is difficult because changes in diet and activity in patients under treatment are necessary. Thus inactivity in bed increases the insulin requirement. At least it is apparent that chemotherapy had no striking or permanently harmful effect on the diabetes

Insulin reactions were very rare in the series. The tendency of the blood sugar to remain at an elevated level during infection makes reactions unlikely, but

care must be taken to prevent reactions in patients whose insulin requirement drops with improvement in the infection.

### PRODUCTION OF ACIDOSIS

There were no cases in which acidosis developed concomitant with or because of chemotherapy, as indicated by daily tests for diacetic acid in the twenty-four hour urine. As a test, an elderly woman was given 4 Gm, of sulfadiazine; the changes in plasma carbon dioxide, blood sugar and blood sulfadiazine levels during the following twelve hours are summarized in table 5. The patient entered the hospital in the afternoon with gangrene of the foot, lymphangitis half way to the knee, fever, arteriosclerosis, uncontrolled diabetes and in a condition even more precarious than these facts indicate. She was given sulfadiazine in the hope that extension of the infection might be prevented and that the guillotine amputation through the lower leg, to be carried out on the following day, might be done with less danger. As the table shows there was no significant fall in the plasma carbon dioxide content even though the blood sulfadiazine level rose to 8.0 mg. at the end of five hours. It is of interest that in such a patient a rapid increase in the blood level could be obtained without any evidence of toxic symptoms or of impairment of renal function. It is true that the patient received a small amount of insulin and that the blood sugar value fell in a desirable manner during the twelve hours following the dose.

### SUMMARY

The use of sulfadiazine and sulfathiazole in 100 consecutive diabetic patients ranging in age from 7 years to 86 years with infections of various types was observed with respect to the frequency of toxic symptoms, the effect of these drugs on the diabetes and their efficiency in controlling the infection.

The chief toxic effects were nausea and vomiting, but these symptoms occurred with no greater frequency than has been reported in a series of nondiabetic patients. Grave toxic reactions did not occur.

Symptoms of toxic nature occurred with sulfadiazine less frequently and in less serious degree than were observed with sulfathiazole.

The avoidance of severe toxic symptoms depends on their prevention by constant attention to the relation between dosage and blood level of the drug, the maintenance of a urinary output of at least 1,500 cc. daily and vigilance in recognizing early symptoms with consequent omission of the drug.

The insulin requirement was increased in 45 cases during treatment, possibly as the result more of the infection than of the drug, as in 55 cases of the series an actual decrease in insulin dosage occurred, presumably because of the control of the infection.

No evidence of acidosis following the use of sulfadiazine or sulfathiazole was observed.

In diabetic foot infections the chief danger is from the diminished blood supply. Although chemotherapy may prevent extension of infections, the danger of allowing delay in performing surgery must be stressed.

The cure of 2 cases of septicemia due to hemolytic Staphylococcus aureus together with the striking results in genitourinary infections and in pneumonia give sulfadiazine first place as a chemotherapeutic agent in such infectious complications of diabetes.

### THE KENNY TREATMENT OF ANTERIOR POLIOMYELITIS (INFANTILE PARALYSIS)

REPORT OF THE FIRST CASES TREATED IN AMERICA

JOHN F. POHL, M.D.
MINNEAPOLIS

In March 1940 Miss Elizabeth Kenny of Brisbane, Australia, proceeded to America to present to the American medical profession her unique and original method of treating the disease infantile paralysis. The method of treatment which has become known as the Kenny system has been evolved by Miss Kenny as a result of her painstaking study of the signs and symptoms presenting themselves in the acute stage of the disease as she has observed them over the considerable period of years since her graduation as a nurse in 1911.



Fig 1.—Acute poliomyelitis: hamstring tendons Spasm of the ham string muscles prevents extension of the knee

Her work has been officially recognized by her government in that clinics have been established at various centers throughout the Australian state of Queensland, and the treatment has been made available in the public institutions. Convictions based on this recognition prompted Miss Kenny to seek acceptance by the American medical profession in the belief that more widespread use of the method would be of value to the victims of the disease throughout the world. Realizing at the same time that her work, however successful from a practical point of view, lacked scientific explanation, Miss Kenny sought assistance in the research laboratories of America for the scientific elaboration of her theories.

The first case undertaken by Miss Kenny came under treatment in June 1940. In all, 26 cases in the acute

and subacute stage were admitted to the Minneapolis General Hospital in the fall of 1940 and were personally treated or supervised by Miss Kenny. She was assisted by Miss Mary Stewart Kenny, herself a trained and skilled technician in the Kenny system, who had accompanied Miss Kenny from Australia. A special ward was set up in the hospital for the purpose of observing the methods and progress of the patients, and complete cooperation from the medical staff as well as the nursing staff was offered Miss Kenny. Approximately eighteen months have now elapsed since the beginning of the work in America. As the usually accepted period of recovery in poliomyelitis is considered to be from eighteen to twenty-four months following the attack, it is now possible to state the conclusions which can be drawn from the observation of the Kenny treated patients in comparison with similar experience in the same clinic previous to the use of the Kenny technic A summary of these cases is contained in the accompanying table. The tremendous and far reaching advantages of the method over any previously recognized methods of treating infantile paralysis makes it imperative that the work of Sister Kenny be made generally known to the physicians of America as quickly as

First it must be made clear that the Kenny method has no argument with any other method of treatment of infantile paralysis for the simple reason that the principles were designed for the management of specific findings appearing in the acute stage of the disease which had never been recognized previous to the work of Miss Kenny. Practically all attempts at treatment by other means have been aimed at the prevention of deformities, usually by splinting and immobilization, rather than by treating the condition affecting the muscles, which ultimately causes the deformities. In short, the Kenny method is a treatment of certain phases of the disease of infantile paralysis, while practically all other methods are in reality treatment of the after effects of the disease.

The disease of infantile paralysis in the acute stage presents three cardinal attributes according to the conception of Miss Kenny, other than the paralysis due to nerve damage. These fundamental characteristics are muscle spasm, mental alienation of muscle and incoordination of muscle function. It is obvious therefore that treatment based on these findings could have nothing in common with a treatment designed for a disease exhibiting flaccidity of muscle and one which does not recognize incoordination as occurring.

The Kenny method of treatment is based on the belief that poliomyelitis in the acute stage is a disease which attacks not only the nervous system but the muscle tissue directly as well. This is an inflammatory process within the muscle, of which spasm is the most distinguishing characteristic. Spasm of muscle is the earliest, the most common and the most damaging finding affecting the muscles in acute anterior policmyelitis Paralysis may or may not be present, depending on involvement of the motor cells of the spinal cord, but spasm is the damaging element in the involved muscles. This characteristic is usually associated in the acute stage with pain, and the spasm itself may be the cause of pain. One of the most striking features in the demonstration of the treatment is the prompt relief of pain and the remarkable comfort of the patient within a few days after treatment has been begun. This in itself is sufficiently dramatic and gratifying as to gain immediate enthusiasm for the method.

Spasm is the condition in muscle tending to cause shortening of the muscle. The stiff neck and the tight hamstrings are examples universally accepted as findings in the acute stage of infantile paralysis. It had not been previously considered that spasm may be a feature of the disease affecting all the involved muscles. Examples of the effect of muscle spasm are shown in figures 1 and 2. A muscle in spasm is unable to relax and allow itself to lengthen. As a result of the shortening process, temporary contractures appear which eventually become permanent deformities if the condition remains untreated. A muscle which is allowed to become shortened, besides causing deformities, has lost part of its useful function. The stiff painful contractures of the limbs are too well known to every orthopedist who has treated the disease in the convalescent stage to need further argument for a method which promises relief. The examination of old or



Fig 2—Acute poliomyelitis tendon of tibialis anticus Spasii of the muscle causes the foot to assume the varus position

apparently recovered cases of infantile paralysis offers abundant proof of the damaging effect of untreated spasm. In many cases the hamstrings and back muscles are still tight and shortened, years after the acute process. Deformities may appear even in the non-paralytic form of the disease.

The relief of spasm is the first consideration in the treatment of the acute disease of infantile paralysis. The determination of the presence of spasm in a muscle can quickly be made by the physician from the presence of pain in the muscle or by the fact of limitation of joint motion by the affected muscle. Care must be exercised not to aggravate the condition of spasm by frequent examination or rough handling of the patient. Extreme gentleness in nursing attention is required in order not to cause more pain and spasm in the irritable muscles. Immediate treatment is imperative if serious and permanent damage to the muscle is to be avoided. Treatment must begin as soon as the disease has been diagnosed A delay as long as three weeks may mean inevocable harm to the delicate muscle substance. The Kenny treatment employs the use of moist heat. Wool flannel packs of proper size are immersed in boiling water, wrung twice through a tight wringer at the bedside and quickly applied to the involved area. The materials comprising the pack are shown in figure 3. The pack must accurately cover the entire body of the affected muscle, but joints are left free in order not to give the patient any sense of immobilization of the limb.



Fig 3—Acute poliomyelitis. Miss Kenny demonstrates the application of the hot pack. Note the covering layers in position ready for immediate completion of the pack.

The moist pack is covered with oiled silk and then with dry flannel. The pack is changed every two hours but may be renewed as often as every fifteen minutes if the spasm is very acute. Packs are continued through twelve hours of the day. No ointments are applied to the skin; burns do not occur if the packs are wrung quite dry. The acute spasm with pain will subside usually within a week if treatment is proper. Tendency of the muscle to remain in a state of contraction or



Fig. 4 -- Acute poliomyelitis Spasm of the hip flexor muscles causes the pelvis to tip forward

shortening may persist for weeks or months, and especially if treatment is instituted some days or weeks after the onset. Hot packs must be continued until the muscle is able to extend itself completely as evidenced by full range of motion of the joint concerned. A remarkable state of health, tonus and vigor in all the tissue of the extremity affected is preserved by this

# Summary of 1940 Cases Treated by the Kenny Method

Casa			Age	Duration of Symptoms Before	Inv	olvement	Length of	
Case No.	Patient	Sex	in Years	Beginning Treatment	Paralysis	Muscle Spasm	Hospital	
1	н. н.	₫	17	S mos.	Severe both lower extremities; partial upper extremities; partial back; complete abdomen	Contractures back, ham- strings, calves, feet; scollosis; decided inco- ordination of muscles	Stay 12 mos.	Result of Trentment and Present Condition Contractures relieved; scollosis improved; cond-a tion restored; all muscles improved, walks with crutches; no apparatus; attends outpatient depart ment three times weekly for treatment
٤	L. L.	φ	5	3 days	Anterior tibials (transient)	Posterior neck, back, hamstrings, gastroc nemu	12 days	Complete rehef of muscle spasm, complete release tion of muscle function; no deformities; now all child; no further treatment
3	C. R.	o'	32	3 days	Complete abdomen, complete both lower extremities	Severe neck, back, ab domen and all muscles of lower extremities	18 mos. («till in hospital)	Complete relief of muscle spasm; no determities; full range of joint motion; recover, of abdoment muscles; lower extremities fiall; stands and tasts few steps; daily treatment
4	D G.	ď	7	3 days	Right scapular muscles weak; anterior neck (apparent); bulbar	Posterior neck, back, hamstrings, severe in abdominals	48 days	Complete relief of muscle sparm, recovery of paralysis; no deformities; normal child, full activity; no further treatment
8	R. G.	₫	17	24 days	Severe all extremities, chest, back and abdomen	Generalized severe, especially shoulders, hamstrings and lower extremities	9 mos.	Complete rehef of muscle spasm; good acoust in all muscles except left upper extremity, walks with canes; no deformities; no apparatus; attends at patient department two times weekly for thatment
G	D. J.	ð	19	9 days	Severe back, ab domen, both lower extremities	Posterior neck, back, hamstrings and gastroe nemii	11 mos	Complete relief of muscle spasm; no stiffness or deformity; good recovery in back and lett lower extremity; fair recovery in abdom nal muscle aringht lower extremity; walks with crutches; to apparatus; attends outpatient department three times weekly for treatment.
7	C, C.	\$	8	1 day	Severe abdomen, both lower ex- tremities	Severe posterior neck, back, hamstrings and gastroenemin	9 mos.	Muscle spasm relieved; slight residual tightness of right gastroenemius; abdomen recovered; fair trootery of most muscles of extremities; walking will out braces or supports; no deformities, attend outpatient department three times weekly for treatment.
8	P. S.	₫	11	33 days	Severe all ex- tremities	Severe posterior neek, back, pectorals, ham strings and gastroc- nemii	2 mos.	All muscle spasm relieved; complete recovery of a muscles; no deformities; full activity; no further treatment
9	P. W.	ð	3	30 days	Partial generalized right lower extremity	Moderate posterior neck, back, hamstrings, right gastrocnemius	2½ mos.	All muscle spasm relieved; good improvement in s ¹ muscles; slight residual weakness of right gastice nemius; no deformities; gait normal; no further treatment
10	D. J.	φ	9	3 days	Palate	Moderate posterior neck, back, hamstrings, right gastrocnemius; severe in adductors	33 days	All spasm relieved; no muscle weakness; no deformities; normal child; no further treatment
11	рн.	Ç	12	7 days	Total left lower extremity; moder ate right lower ex- tremity	Severe posterior neck, back, hamstrings and gastroenemn	12 mos.	All muscle spasm relieved; recover; right load extremity; complete residual paralysis left load extremity; no deformities; walks well with cratics, attends outpatient department three times weekly for treatment; wears no apparatus
12	L, H.	₫	9	4 days	Slight left scap ular muscles	Moderate posterior neck, back, hamstring muscles	25 days	All muscle spasm relieved; no residual paraifes; no deformities; normal child; no further treatment
13	F. S.	ď	6	3 days	Bulbar and encephal itie; very difficult swallowing and breathing; slight weakness left an- terior tibial muscle	Severe posterior neck, moderate back, ham strings and gastrocnemii	õnks.	All muscle spasm relieved; no residual muscle weal ness; no deformities; normal child; no further treatment
14	D. K.	ਰੰ	11	2 mos.	Complete right up per extremity; severe left shoulder	Contractures pectorals, bleeps, trapezii and hamstrings	10 mos	All contractures relieved; complete residual paralysis right upper extremity; improvement in left shoulder; has useful left upper extremity; no trainment at present time
15	P. G.	ç	114	14 days	Left posterior and anterior tibials	Posterior neck, back, hamstrings; severe left gastroenemius	10 wks	All muscle spaces time of lett gastroenemius; partial return of anteror tibial; no deformity; no further treatment
16	Т.К.	₫*	6	2 days	None	Posterior neck, back, hamstrings; severe left gastrocnemius	10 nks.	All muscle spasm relieved; no deformities; both child; no further treatment
17	Α. Λ.	Ç	33	5 n k = .	Severe both lower legs; weakness of abdominal muscles	Contractures of gastroe nemil and hamstrings	10 mos.	Contractures improved; fair return of muscle poner; walks well with crutches; no further treatment
18	J. E.	ð	7	20 days	Severe right -houlder and scap ular muscles	Right pectorals major, posterior neck, back and hamstrings	E wks.	All muscle spasm and shortening reflevel; real of paralysis of right deltoid; shoulder improved will scapula; receives home treatment
19	J.S.	Ş	7	7 days	Severe generalized left lower ex- tremity	Science posterior neck, back, abdomen, ham strings and gastroc nemti		scapula; receives nome trainment All muscle spasm relieved, no deformities; reteited paralysis left lower extremity; walk will with crutches; attends outpatient department these weekly for treatment; wears no apparates all muscle spasm relieved; no deformities; nortical childs no further treatment
02	A. Q.	ç	15	9 day -	None	Moderate posterior neck, back, hamstrings and gastroenemia	17 days	esteste
21	R. L.	ď	4	7 days	Severe left lower extremity	Severe posterior neck, back, abdominals, ham strings and gastroe nemii		with manual assistance; attends outpaids were a ment for treatment at intervals; parents were a structed in treating this patient
23	T. F.	ď	112	4 days	Slight right lower extremity, general ized	Moderate in posterior neck, back, hamstrings and right calf		structed in treating this patient. Complete relief of muscle spasm; full recover of all invecles; normal galt; no deformities; no it treatment. All muscle spasm relieved; recovers of rights of love a slight residual generalized weakiers of love a slight residual generalized weakiers of love.
23	п. с.	ď	20	3 da3 e	Weaknes right del told; moderate gen cralized both lower extremities	Right pectoralis major; severe posterior neck, back, hamstring- and pastroenemii		All muscle spasin relieved; recovery of ramper sight residual generalized weakers of lover remitter; walks well; no deformities; coaffer no further treatment

Summary of 1940 Cases Treated by the Kenny Method-Continued

Case			Age in	Duration of Symptoms Before Beginning	Invo	lvement	Length of Hospital	
	Patient	Sex		Treatment	Paralysis	Muscle Spasm	Stay	Result of Treatment and Present Condition
24	R. N.	₽	9	3 days	Bulbar; comatose; no paralysis	Posterior neck, back and hamstrings	26 days	All muscle spasm relieved; no deformities; normal child; no further treatment
25	V. J.	ď	21	2 days	Weakness right shoulder and left hand; complete paralysis both lower extremities	Severe pectoralis major and severe posterior neck, back, hamstrings and gastroenemii	15 mos. (still in hospital)	All muscle spasm relieved; recovery of shoulder; weakness intrinsic muscles of left hand; complete paralysis of both lower extremities; no deformities; stands but does not walk; daily treatment
26	м. н.	ď	20	3 mos.	All extremities when acute; chest; in respirator; mod- erate generalized residual weakness left upper extremity and both lower extremities	Contractures pectorals, back, hamstrings; cavus left foot; incoordination	4 mos.	All contractures and stiffness relieved; all muscle power improved; slight residual weakness of left upper extremity and both lower extremities; no deformities; walks very well; no further treatment

method, and freedom from circulatory and trophic changes are strikingly noteworthy. Figures 4 and 5 illustrate the effect of relief of muscle spasm by the Kenny treatment when promptly applied in the acute case of poliomyelitis.

With the relief of spasm begins the true restoration of function of the normal bodily mechanics. Spasm, besides the actual damage to the muscle tissue, has a further disturbing effect on the neuromuscular system. It must be kept in mind that motion of a joint in any given plane is a matter of control by opposing muscles. As the flexor begins to contract, the extensor relaxes or pays out slack in a graduated manner so that smooth joint motion results. The extensor, however, maintains a certain amount of tonus so as to be able to reverse the motion by contracting on instantaneous notice. Opposing muscles do not ordinarily contract at the same time. A muscle in spasm is a muscle attempting to contract. Spasm in the extensor will result in relaxation of the flexor of a joint. Furthermore, the flexor will refuse to pull against the extensor which is painful. The result is that the flexor in this case ceases function, although it may be quite normal. Such a muscle appears to be paralyzed, whereas in reality it is only nonfunctioning. It has become divorced from the motor pattern or alienated from the voluntary center regulating motion. It must be restored, and it can be made to function by teaching the patient awareness of the muscle and of its normal action on the joint. This is first done by the process of stimulation, that is of exciting the proprioceptive nerve endings in the muscle and tendon which normally inform the central nervous system of the position and motion of the joint. Alternately lengthening and shortening a muscle within its normal range of contraction by moving the joint in a small arc will serve to do this, care being taken, however, not to stretch or stimulate the opposing muscle which is in spasm. This procedure may be repeated daily until such time as the spasm has been relieved in the opposing muscle by the use of the hot foments. The patient is then gradually retrained in the use of the alienated muscle, first being taught the position and action of the muscle, but being allowed no voluntary joint motion until proper function of the muscle has been restored. Only by insisting that the muscle contract, but purely in a mental sense at first, when it is nonfunctioning. can eventual reestablishment of smooth coordinated motion of opposing muscles be secured. After normal rhythmic action of muscles is imprinted on the motor center, the patient is allowed voluntary effort.

To allow a patient to make haphazard motions of a joint in the presence of nonfunctioning muscles is to

invite a state of incoordination. The patient makes such motions by the process of substitution. Consider the hip joint as an example. Normally the hip is flexed by the iliopsoas. The opponent is the hip extensor (hamstrings). Assume that the hip flexor ceases function. To flex the hip the patient may substitute the adductor (adductor longus, brevis and magnus). To gain mechanical advantage for these muscles in their new function, the hip is now externally rotated. Contraction of the adductors is normally associated with relaxation of the hip abductor (gluteus medius and minimus). It is unlikely that the hip extensor will pay out slack, at least smoothly, for contraction of the hip adductor if it is substituted for the flexor. Smooth motion is lost, and incoordination is established. This condition may become permanent. Only by carefully guiding every motion of the patient from the beginning of treatment can this undesirable state be avoided. The patient can be allowed no voluntary effort in muscle contraction in the presence of any incoordinated muscle action. He must be kept quiet in bed, being turned and cared for by the attendant until such time as proper muscle function is again restored. Once muscles are working in correct and harmonious action, use of the extremity serves to reenforce the nerve impulses retrained to their proper order.

The Kenny method employs no splinting of any kind. On the basis that spasm is the state affecting the muscles, it follows that splints would tend to aggravate the irritable muscle and increase the spasm. Rigid immobilization also tends to encourage shortening of muscle and resulting permanent contractures. Splinting also interferes with the application of moist heat. Most splinted extremities suffer from permanent trophic and circulatory changes because of failure of treatment of the tissues in the acute stage of the disease. The idea of splinting is to prevent contractures and deformities. While it may prevent contractures in flexion it will not prevent contractures in extension, a condition practically as damaging, as far as function is concerned. The Kenny method particularly stresses the avoidance of any form of immobilization. The patient is placed on a firm bed in the normal position of rest. This position is illustrated in figure 6. Even clothes are omitted from the patient, warmth being obtained by using flannel blankets for sheets. An upright board placed at the foot of the bed serves to stimulate the normal standing and postural reflexes. This is in no sense a splint. During the period of active spasm, usually lasting a week, and especially in the presence of any spasm of the calf muscles, the feet are not placed against the foot board. To do so would aggravate the spasm. In the 26

cases reported here no splints of any kind were applied during the entire course of treatment. It can be unreservedly stated that no deformities of any kind occurred in any of these cases as a result of the omission of splinting or immobilization.

It is well known that many patients with infantile paralysis do not have the paralytic form or recover without treatment. Recovery of these patients does not mean that the patient is restored to normal. Careful scrutiny of these patients even years after the disease will disclose that the back or hamstring muscles are still tight and shortened in many cases. Curvature of the spine and other deformities are seen to occur in these cases even when there was presumably no paralysis. While the inclusion of this type of case in the present report might seem open to question in a discussion of the therapy of infantile paralysis, the treatment of these patients is as important as it is of those who have real paralysis. Kenny treatment of this type of the disease will truly restore the patient to normal. Most of the patients are in fact better physical specimens after the training than they were prior to the attack of the disease.

Statistical comparison of the Kenny cases with any other series of cases is a practical impossibility. Paralysis occurs in each, but muscles that are soft, flexible and receptive can hardly be compared with those which are shortened, fibrosed and inelastic. A paralyzed leg which has good circulation cannot be compared with one which is cold, damp, clammy and blue. A paralyzed extremity which has full range of joint motion can hardly be compared with one which is stiff and deformed, however lifeless the muscles in the two might be. No claim is made of a cure for paralysis; there is no cure. There is no argument with the recognized concept of the relationship between the muscle fiber and the anterior horn cell of the spinal cord. A full appreciation of the value of the Kenny method can be obtained only by examination of the patients. The comfort of the patient, the warmth and life in the affected members, the absolute freedom from deformities, the



Fig. 5—Same patient as in figure 4. Spasm of the hip flevors has been relieved by the Kenny treatment. Note the correction of the pelvic tipping.

receptiveness of the weakened muscles to stimuli, the ability to walk without supports in the presence of considerable weakness, the effortless movement of joints with smooth coordinated muscle function are all points which make the Kenny method of obvious value to those faced with the task of treating and salvaging the victims of this most dreaded disease. Paralysis is unfortunately

a feature of the disease, but paralysis proves after all to be a minor consideration in most cases of infantile paralysis. Muscle spasm and incoordination are far more damaging to the bodily mechanics. The Kenny method when properly applied will reduce the crippling effects of the disease of infantile paralysis. Within the



Fig 6 -- Convalescent poliomyelitis basic position in bed maintained by patient during the course of treatment

limits of the present knowledge and means of treatment of the disease it offers the patient the maximum assurance of recovery and restoration of function of his motor system. Deformities have been outlawed.

### CONCLUSIONS

As a result of the demonstration carried out at the Poliomyelitis Clinic at the Minneapolis General Hospital for eighteen months beginning in the fall of 1940, it can be stated that:

- 1. Miss Kenny has conclusively shown that spasm is the condition aftecting the muscles in the acute stage of infantile paralysis. Spasm is the cause of deformities Spasm causes mental alienation of muscle, a pseudoparalysis occurring in the opposing muscles to those in spasm, in which those opposing muscles are divorced from the voluntary motor pattern and cease functioning. Spasm plus mental alienation causes incoordination of muscle action, resulting in further damage to the motor mechanism.
- 2. Miss Kenny has demonstrated a method of treatment for the symptoms she describes which diminishes the crippling after-effects of the disease of infantile paralysis.
- paralysis.

  3. At the end of eighteen months after beginning the Kenny treatment of a series of 26 patients in the acute and subacute stage it can be stated that these patients

have all made a far more satisfactory recovery than they would have made by any previously known method. No deformities have occurred, in spite of the complete omission of splinting.

- 4. The methods as demonstrated form a complete system for the treatment of the neuromuscular aspects of the disease.
- 5. Incorporation of the principles of the Kenny method with those of other methods for the treatment of infantile paralysis would prove unfeasible, as the Kenny method is based on previously unrecognized symptoms of the disease.
- 6. The method should be immediately adopted as the fundamental treatment of the disease of anterior poliomyelitis. As the condition affecting the muscles appears with the onset of the disease, it is imperative that treatment be instituted as soon as the diagnosis is established.

An additional series of 28 cases occurring in the fall of 1941, all coming under treatment in the acute stage, have presented very satisfactory progress to date. These cases will show even more remarkable recovery when viewed at the end of the treatment period. The fact that these cases were treated early and that the medical and nursing staff were better prepared to carry out treatment by virtue of the experience gained with the 1940 series will insure a maximum recovery in the 1941. series. These cases will be reported in detail later. 1945 Medical Arts Building.

### THE EARLY TREATMENT OF POLIOMYELITIS

WITH AN EVALUATION OF THE SISTER KENNY TREATMENT

> MARY M. I. DALY, M.D. JEROME GREENBAUM, M.D. EDWARD T. REILLY, M.D. ALVAH M. WEISS, M.D. AND PHILIP M. STIMSON, M.D. NEW YORK

It is our purpose in this paper to discuss the treatment of anterior polionivelitis in the acute stage as it was carried on at Willard Parker Hospital in 1941. We wish to emphasize the fact that our treatment at the present time is entirely symptomatic-more specifically that we do not use serums,1 sulfonamides, spinal fluid drainage, electrical ionization or stimulation, or any medication intended to alter the disease process. We accept the explanation that in virus diseases the virus has already attached itself to the body cell before clinical symptoms occur. In the case of poliomyelitis, this fact was demonstrated by Kramer and Parker 2 in 1933, when, in the anterior horn cells of monkeys inoculated with the virus, lesions were found before the animals showed clinical signs of the disease.

We are aware of the fact that the 1941 epidemic was comparatively small in this city, but we feel that the fewer cases offered opportunity for careful study.

A total of 71 patients was treated, ranging in age from 8 months to 28 years. The cases were classified as follows: nonparalytic, 12; bulbar, 5; bulbar with neck involvement, 6; bulbar and spinal, 5; spinal, 43. No patients with cerebral manifestations were seen, and no deaths occurred.

General therapeutic measures consisted of complete bed rest, adequate fluid and vitamin intake, and sedation as necessary. In the cases in which there was bladder paralysis, catheterization was indicated and, if necessary, an indwelling catheter was used until function returned. Constipation was frequently encountered. especially in patients with paralysis of the abdominal muscles, so that enemas were given as needed; but very few cathartics were used. Laboratory procedures included complete blood counts, urinalyses and examination of the spinal fluid.

In the treatment of patients with bulbar paralysis. painstaking nursing care was essential. Patients unable to cough up or to swallow mucus which had accumulated in the pharynx were placed in the prone position with the foot of the bed elevated. This position, as suggested by Durand,3 Stimson 4 and others, is helpful in allowing the secretions to drain from the nose and mouth. Gentle suction with a soft rubber tube was also used. These patients were fed by a Levine stomach tube until the ability to swallow returned. If vomiting occurred, parenteral fluids were given. Because of the frequent misuse of the respirator in bulbar cases, a special point is made of the fact that in respiratory distress due to mucus accumulation the respirator is not only not indicated but definitely contraindicated. This treatment of cases with bulbar involvement is not new, but because of the danger of aspiration pneumonia we feel that it should be emphasized.

Of the 12 nonparalytic cases, 2 were treated by the Kenny method, and the remaining 10 were treated by complete bed rest and discharged at the end of three to four weeks, symptom free. Eight of the latter group were seen in the follow-up clinic four months after the onset of the disease and, though apparently free from paralysis, showed, on careful examination, the presence of spastic muscle groups with resulting deformity due to muscle imbalance. In 3 of the 8 cases there was unilateral spastic involvement of the back muscles, resulting in beginning scoliosis.

Forty-eight of our patients had spinal involvement. Included in this number are those with associated bulbar paralysis. The spinal involvement ranged from a paralysis of a single muscle group to an extensive paralysis including all four extremities, intercostals, the diaphragm and the abdominal muscles. Thirty-one patients were treated by orthodox methods from August 8 until September 23. On admission, a detailed muscle analysis was not done; hence, in the summary given, loss of function rather than single muscle involvement is described. Thus, of 27 patients, there were noted inability to flex the neck, 5; inability to abduct the arm, 5; inability to flex or extend the forearm, 16; finger and hand weakness, 3; gluteal weakness. 2; respiratory distress (due to paralysis of intercostals and diaphragm), I; weakness of lower extremities, 22; inability to void urine, 3. As mentioned previously, in a given patient this involvement varied from a single paralysis to an extensive paralysis of several muscle groups.

From the Willard Parker Hospital.
Read before the Pediatrics Section, New York Academy of Medicine,
March 12, 1942.
1. International Committee for the Study of Infantile Paralysis:
Poliomyclitis, Baltimore, Williams & Wilkins Company, 1932, pp.
318-241.

^{2.} Kramer, S. D., and Parker, G. C.: Experimental Poliomyelitis: Evidence of Early Involvement of the Central Nervous System, Proc. Soc. Exper. Biol. & Med. 30: 1417 (June) 1933.

^{3.} Durand, Jay 1.: Postural Treatment in Bulhar Infantile Paralysis, J. A. M. A. 93; 1044 (Oct. 5) 1929.
4. Stimson, P. M.: Common Contagious Diseases, ed. J. Philadelphia, Lea & Febiger, 1940.

Toronto splints 5 and plaster casts were used for immobilization. In this group of patients atrophy, often pronounced, and deformities were noted during the second and third weeks. As is customary, these patients in the third to the sixth week of their disease were transferred to various orthopedic hospitals for further treatment. Seventeen were seen four to five months after being transferred. In every case we found limitation of motion due to tight and contracted muscles. In almost every instance there was gross substitution and muscle incoordination. That the contractures were apparently due to the immobilization may be demonstrated in the following illustration:

A 3 year old patient was admitted with complete paralysis of the deltoid and only minimal weakness of the biceps and triceps. Forearm extension and flexion could be performed actively by the patient. The involved arm was placed in a Toronto splint with the arm flexed at the elbow at an angle just over 90 degrees. Six weeks later the strength of these muscles was unchanged, i. e. the deltoid paralysis continued, as did the minimal weakness of the biceps and triceps. At that time the patient was able to flex the forearm, but neither passive nor active extension was possible beyond an angle of 90 degrees. The biceps tendon was somewhat rigid on palpation. These findings suggest that this limitation of motion was a result of continued biceps spasm during the immobilization.

Similarly, in all cases in which leg splints or casts were applied there was definite loss of motion at the knee due to contracture.

### KENNY METHOD

As described in the American Literature by Cole and Knapp, Sister Kenny emphasizes three cardinal symptoms in poliomyelitis: primarily muscle spasm and subsequently muscle incoordination and mental alienation. The symptomatic treatment of these three manifestations by means of hot packs, passive motion and muscle reeducation comprises the Kenny treatment.

So that this terminology may be clearly understood, the following illustration is given:

In a patient with apparent paralysis of the deltoid, one finds spasm in antagonistic muscles such as the pectoralis and the latissimus dorsi, and in substituting muscles such as the suprascapular group. If such a patient attempts to abduct the arm, the aforementioned spastic muscles contract further, resulting in an incoordinated movement. Continued active attempts at abduction result in further alienation of the involved muscle—the deltoid—and further tightening of the spastic muscles.

At the Willard Parker Hospital the Kenny treatment was carried out in the following way: A careful physical examination was done to evaluate the extent of weakness and the sites of hyperactive spastic muscles. Bed boards were placed under all mattresses, and a box was put at the foot of the bed, against which the patient was instructed to place the soles of his feet. He was encouraged to lie in bed with his extremities in the same position as in standing. No pillows were permitted. When the patient was lying on his abdomen, the box was removed and the feet were allowed to protrude over the end of the mattress. Hot packs were applied wherever spastic muscles were found. The entire back, from the head to the heels, was invariably included in the spasticity. These packs consisted of pieces of flannel or old blankets which were dipped in

hot water, about 110 to 120 F., wrung dry by hand and applied directly to the involved part. These were then covered with a dry blanket. Packs were applied for fifteen minutes every two hours during the day and every four hours at night. During a fifteen minute period a pack would be reheated about four times. This technic varies somewhat in detail from Sister Kenny's present technic, but the principle is the same.

Passive exercises were started on the first day of the treatment; the range of motion extended to the point of pain or spasm. Several passive movements were executed for each involved muscle group twice daily. After three or four days, when pain and tenderness were greatly reduced, reeducation was begun. Patients over 3 years of age were allowed to feel the difference between a relaxed and a contracted muscle. The paralyzed or "alienated" muscle was then indicated and attention called to its point of insertion. When the involvement was unilateral, this step was often simplified by using the nonparalyzed side for comparison and demonstration. During the passive movements the patient was instructed to relax completely, focus his attention on the selected muscle, especially its insertion, and try to establish a mental awareness of the action of that muscle. When a muscle responded during passive exercises, gradually increasing tone in the muscle and its tendon was noted by the examiner. In regions where the tendons lie close to the surface, such as the dorsiflexors of the feet and toes, this increasing tone was visible.

At the end of the passive exercises, the patient was permitted to attempt one active movement. When substituting groups contracted during passive or active movements, the patient was instructed to relax and, if he was unable to cooperate, reeducation was abandoned for that day and more frequent hot packs were applied. At the onset, muscle reeducation was carried out twice daily and, as the patient improved, once daily. The range of passive motion was gradually increased as pain and spasm subsided. Hot packs were given during this entire period and complete bed rest continued. All active movements were assisted, and were not performed against resistance or gravity. During our period of observation, which was up to two and one-half months, many muscle groups remained under this regimen, while others were allowed to progress to the stage of independent active motion. The indications used at Willard Parker Hospital for beginning this next state were:

- 1. No evidence of spasm during full range of passive motion in (a) the selected muscle or muscle groups, (b) antagonístic groups, (c) substituting groups.
- 2. Ability to perform a coordinated active movement without substitution.

In this arbitrarily named second stage of treatment the hot packs were discontinued and more activity was permitted. If, at any time, spasm recurred in the selected group or related muscle groups, or if substitution was noted, the first stage of treatment was resumed. Careful observation was essential throughout the entire period of hospitalization so that beginning spasm in previously uninvolved areas might be detected and treated early. Especially important was that time when weight bearing had first been permitted.

Extent of improvement was judged by absence of atrophy and substitution, as well as by the return of

function and strength.

^{5.} Supplied by the National Foundation for Infantile Paralysis.
6. Cole, W. H., and Knapp, M. E.: The Kenny Treatment of Infantile Paralysis, J. A. M. A. 116: 2577-2580 (June 7) 1941.

OBSERVATIONS ON THE KENNY TREATED PATIENTS

On September 23 the Kenny treatment was started at Willard Parker Hospital. Eventually all patients present in the hospital at that time and all subsequent new admissions were included, giving a total of 28 cases. which were classified as follows: nonparalytic, 2; bulbar and spinal, 4; bulbar with only neck involvement, 5; spinal, 17. Fourteen of these patients received the treatment from admission; the remaining 14 were started at times which varied from the first to the seventh week of illness. So that a comparison may be made of the total involvement of this group with that of the earlier group which received orthodox treatment, the following summary is presented. (A detailed analysis of the paralytic and spastic involvement is given in the individual case histories.) Thus, in 26 paralytic cases, there was noted inability to flex the neck. 12; inability to abduct the arm (paralysis of entire shoulder girdle), 5; inability to flex or extend the forearm, 10; weakness of intrinsic finger and hand muscles, 1; respiratory distress (intercostals 2, diaphragm 2), 4; pronounced scoliosis (quadratus lumborum weakness), 1; paralysis of the abdominal muscles, 6; paralysis of the lower extremities, 20.

Of the 28 patients, 2 were nonparalytic. One (patient 44) showed pronounced spasm of the dorsum of the neck, the back and the hamstrings, which responded to treatment within three weeks. Three months after the onset of the disease there was no evidence of scoliosis. There was no follow-up on the other.

Two patients (58 and 59) showed an interesting cture. Both were boys, 13 and 19 years of age, respectively, with well developed muscular systems. On admission, I had minimal weakness of the abductors of the left thigh, while the other had minimal weakness of the right quadriceps, hamstrings and gastroconemius. In neither of these patients could weakness be detected at the end of the second week of the illness. Though the clinical course was extremely mild, both patients showed such severe spasm of the dorsum of the neck, the back and the hamstrings that active and passive flexion of the trunk was impossible. These patients received hot packs during the first two weeks, and thereafter the packs were supplemented with one to three hot baths daily. In the sixth week of the illness these patients were able to flex the trunk when the knees were extended. This action at that time, however, was still limited greatly by the spasm.

In 12 cases there was inability to flex the neck and severe spasm of the dorsum of the neck. Five of these were bulbar cases, 4 were spinal cases and 3 showed bulbar and spinal involvement. In this group the date of onset varied from August to December. The two latest patients are still showing signs of improvement, while the remaining 10 patients have shown good to excellent return of function and power. Atrophy was seen in 2 patients in whom the Kenny treatment was begun in the fifth and seventh weeks of illness. It is interesting to note in this group that the extent of improvement seems directly proportional to the time of introduction of the Kenny treatment; i. e., in those patients so treated from the onset of their disease, lack of atrophy and substitution is a constant observation.

There were 4 patients with complete deltoid paralysis. One of these (patient 67) had extensive paralysis of the entire upper extremity, including the shoulder girdle, and showed spasm in the pectoralis, latissimus dorsi and triceps on the affected side. This presence of spasm in completely paralyzed muscles was noted

frequently. At the end of seven weeks this patient had complete range of passive motion of the involved arm but continued to show complete paralysis. However, at that time beginning contractions could be felt in the involved muscles during passive exercises. When seen in the twentieth week of the disease, there was beginning return of function in the muscles of the hand and forearm. Two patients (53 and 54) with deltoid paralysis had contractions on passive motion in the second and third weeks of the disease, and these patients showed return of deltoid function four months after the onset with minimal weakness and substitution. The fourth patient in this group (patient 63) had congenital hemangiomas of the involved arm, and at the time of discharge there had been no return of deltoid function.

There were 10 patients with paralysis of the dorsiflexors of the foot. At the end of four months, 2 of these patients (68 and 70) still showed complete paraly-However, there was minimal atrophy and substitution, and no contracture of the achilles tendon. The other 8 patients had return of function. At the end of four months there seemed to be fair to good return of strength in all the muscles. Only 1 patient (patient 62) showed a deformity which was minimal in the third month. This patient had been admitted in the second week of his disease with beginning contracture of the achilles tendon. During the treatment this deformity became less apparent. It is interesting that his clinical course at home had been mild and that the diagnosis of poliomyelitis was not suspected until a limp was noted when the child was allowed out of bed.

Three patients (55, 61 and 66) had apparent intercostal paralysis with resulting difficulty in breathing. All had pronounced pectoral spasm. The respiratory rate of 1 of these patients remained at 12 per minute for a period of over eighteen hours. Frequent packs were applied to the spastic pectoral muscles. Coincident with the relaxation of these muscles, as determined by passively abducting the arms, there was return of normal chest excursion.

Four patients had pronounced paralysis and 3 showed some weakness of the anterior abdominal muscles. It was in this group of patients that persistent constipation was noted. We feel that involvement of the abdominal muscles is easily overlooked in the acute stage, as evidenced by its infrequent mention in many of the detailed reports of larger epidemics. Because of the persistent spasm of the back and hamstrings, return of function in the abdominal muscles is difficult to evaluate at this time.

One patient (patient 57) presented a decided left lumbar scoliosis on admission. This was associated with spasm of the right quadratus lumborum and apparent paralysis of the left quadratus lumborum. At the end of three weeks there was no evidence of scoliosis when the patient was at rest, and at the end of four months there was no deformity seen when the patient was in the sitting position.

Fourteen patients had paralysis of the thigh muscles, including the quadriceps, hamstrings, adductors and abductors. Since the leg involvement was bilateral in some patients a total of 20 lower extremities were involved. Only 1 of these patients failed to show any return of function after four months. No limitation of passive motion and hence no contracture deformities were found in this group four months after onset. Two of the patients have minimal atrophy. As has been

pointed out by Sister Kenny, spasm of the adductors and of the sartorius was frequently detected in this group, even when these spastic muscles had complete

loss of power and function.

Ten patients were seen with involvement of arm muscles, usually biceps and triceps paralysis, with supinator and pronator weakness. Only 1 patient (patient 67) failed to show appreciable return of function. In this case paralysis of the deltoid was present and was described with that group of cases. The remaining 9 patients, seen four months after the onset, showed return of useful function and strength. Movements were well coordinated, and no spasm or substitution was seen.

It is still too early to make any statement as to the eventual recovery in these 26 paralytic cases. However, the following observations have been summarized:

- 1. Spastic muscles were found in all patients. spasm was noted in otherwise uninvolved muscles as well as in weak and paralyzed muscles. It was relieved by hot packs.
- 2. In general, the return of unrestricted passive motion took place weeks and months earlier than when orthodox treatment with splinting was used.
- 3. Complete comfort, at rest, was enjoyed by all patients after one to three days of hot packs. Older patients, especially those who had been in splints, remarked on the comforting effect. Sedation was practically never necessary in this group.
- 4. In performing passive exercises with a completely flaccid muscle, the examiner would feel tone in that muscle long before the patient became aware of it, and frequently several weeks before the patient had any voluntary control over the muscle.
- 5. During the period of recovery the patient frequently illustrated what Sister Kenny calls "mental Although able at the end of one day's exercises to perform a coordination action with a given muscle or muscle group, the patient would completely forget on the following day how that action was performed. However, after several passive motions the patient would again remember the action.
- 6. In 4 patients under 3 years of age, no attempt at substitution was noted. When muscle function returned in these patients, coordinated movements were
- 7. While six to nine packs in twenty-four hours of the type described were adequate for relaxation, three to four were not, as was evidenced when there was a temporary diminution in the nursing personnel. During this time an increase in the amount of spasticity was noted in practically every patient.

8. The tendency toward atrophy and deformity was minimal in this group. In fact, it was rarely seen in patients treated from the onset of the disease. general condition of the skin and muscles was excellent.

No burns occurred.

# CASE HISTORIES

### ORTHODOX TREATMENT NONPARALYTIC

CASE 1.-R. E., a 16 year old white youth, admitted on Sept. 4, 1941 with a three day history of sore throat, fever up to 104 F., pain in back of neck, general malaise, diplopia, and a constricting feeling in the throat, had had a left mastoidectomy in 1925, repeated in 1936. He had slight cyanosis of the lips and finger tips, absent ankle and knee jerks and upper abdominal reflexes, pain in the lumbar spine on flexing the head; no weakness. There was a low grade fever for one week; the

course otherwise was uneventful. Treatment, bed rest. Spinal fluid, 100 cells per cubic millimeter; 98 per cent monocytes; protein 29 mg. per hundred cubic centimeters. Discharged, September 19. Follow-up, Dec. 17, 1941, occasional difficulty in swallowing.

Case 2.-F. C., a 10 year old white boy, admitted on Aug. 7, 1941 with a three day history of headache, loss of appetite, vomiting and pain in the back on flexing the neck, had slight nuchal rigidity; temperature, 101 F.; no absent reflexes. The course was afebrile after the first day. Treatment, bed rest. Spinal fluid, August 5, 270 cells per cubic millimeter; 60 per cent lymphocytes; 40 per cent polymorphonuclears; protein 27 mg. per hundred cubic centimeters; August 8, 26 cells per cubic millimeter; 100 per cent monocytes; protein 78 mg. per hundred cubic centimeters. Discharged August 19. Follow-up, Dec. 22, 1941, right hamstring "tightness" on trunk flexion; left shoulder lower than right; slight right dorsal scoliosis.

CASE 3.-J. O., a 6 year old white girl, admitted to the hospital on Aug. 17, 1941 with a two day history of stiff neck, vomiting, fever, loss of appetite and inability to "move the legs" on the day prior to admission, had thick speech, no weakness; biceps reflexes were diminished but equal; the right triceps reflex was absent, the left triceps reflex diminished; ankle jerks and knee jerks more equal and active. A low grade fever continued sporadically for nineteen days. Treatment, bed rest. Spinal fluid, August 17, 160 cells per cubic millimeter; 60 per cent lymphocytes; 40 per cent polymorphonuclears; protein 39 mg. per hundred cubic centimeters. Discharged September 7, Follow-up, left sternomastoid smaller and weaker than right.

Case 4.-D. N., an 111/2 year old white girl, admitted to the hospital on Aug. 22, 1941 with a six day history of fever, headache, stiff neck, vomiting and drowsiness, did not appear acutely There was slight nuchal rigidity, with mild pharyngeal injection, absent right abdominal reflexes and no weakness. There was a low grade fever for one day. Treatment, bed rest. Spinal fluid, August 29, 20 cells per cubic millimeter; 100 per cent monocytes; protein 26 mg. per hundred cubic centimeters. Discharged September 2. Follow-up, Dec. 30, 1941, physical examination negative.

CASE 5.—A. K., a 16 year old white boy admitted to the hospital on Aug. 29, 1941 with a two day history of fever, headache, stiffness of neck and back and nausea, had fever up to 102 F. for three days and persistent neck stiffness. Treatment, bed rest. Spinal fluid, 160 cells per cubic millimeter; 100 per cent monocytes; protein 55 mg. per hundred cubic centimeters. Discharged October 4. Follow-up, Dec. 22, 1941, spasm of right gastroenemius, left sartorius and left hamstrings; spasm of dorsum of neck.

CASE 6.-D. D. (brother of G. D., patient 22), a 15 year old white boy, admitted on Sept. 5, 1941 with a two day history of fever and headache, had nuchal rigidity and bilateral hypoactive knee jerks. He had fever the first day. Treatment, bed rest. Spinal fluid, 75 cells per cubic millimeter with 98 per cent monocytes; protein 36 mg, per hundred cubic centimeters. Discharged September 25. Follow-up, Dec. 17, 1941, occasional pain and spasm in right thigh adductors; spasm of hamstrings, dorsum of neck, trapezius, sternomastoids and platysma.

CASE 7 .- M. A., a 14 year old white boy, admitted Sept. 21, 1941, the fifteenth day of illness, became ill with sore throat and general malaise, the temperature rising to 102 F. during the first week. There was slight nuchal rigidity. The course was afebrile. Treatment, bed rest; occasional hot packs during the fourth week of illness. Spinal fluid, 25 cells per cubic millimeter; 100 per cent lymphocytes; protein 78 mg. per hundred cubic centimeters. Discharged on October 7. Follow-up, Dec. 22, 1941, patient complained of "occasional tightness" of right hamstrings; left shoulder lower than right; beginning right dorsal scoliosis; mild spasm of hamstrings.

CASE 8 .- P. B., a 9 year old white girl, admitted on Aug. 18, 1941 with a three day history of fever, sore throat, vomiting, and pains in both arms and the neck, had a moderately injected pharynx. The temperature rose to 101 F. on the first day. Treatment, bed rest. Spinal fluid, 105 cells per cubic millimeter; 90 per cent monocytes; protein 45 mg. per hundred cubic centimeters. Discharged on August 30. Follow-up, Nov. 5,

1941, absent right knee jerk; spasm of sternomastoids. Dec. 17, 1941, poor posture; slight dorsal curvature to the right on flexion.

Case 9.—S. R., a 12 year old white girl, admitted on Sept. 18, 1941 with a three day history of headache, dizziness and fever, had nuchal rigidity. There was a low grade fever for three days. Treatment, bed rest. Spinal fluid, 70 cells per cubic millimeter; 95 per cent monocytes; protein 63 mg. per hundred cubic centimeters. Discharged on Oct. 4, 1941. No follow-up.

CASE 10.—R. McC., an 8 year old white girl, admitted on Sept. 25, 1941 with a seven day history of fever, sore throat and stiff neck, had slight nuchal rigidity. The temperature rose to 102 F. for five days. Treatment, bed rest. Spinal fluid, 75 cells per cubic millimeter; 100 per cent monocytes; Pandy test positive. Discharged on Oct. 10, 1941. No follow-up.

#### BULBAR

Case 11.—E. S., a 4 year old white girl admitted on Sept. 22, 1941 with a three day history of pains in the arms and legs, general malaise and nasal regurgitation, had been given 35 grains (2.25 Gm.) of sulfadiazine prior to admission. Tonsillectomy had been done fourteen days before onset of the disease. The patient was acutely ill; there was nasal regurgitation; speech was nasal. The temperature was up to 101.6 F. for three days. Treatment was symptomatic as described. Feedings were given by the Levine tube for five days. Spinal fluid, 80 cells per cubic millimeter; 100 per cent monocytes; protein 18 mg. per hundred cubic centimeters. Discharged on Oct. 7, 1941. No follow-up.

CASE 12.-L. F., a 14 year old white girl, admitted on Sept. 17, 1941 with a three day history of nausea, vomiting, dizziness, headache, sore throat and inability to swallow, was acutely ill; there was nuchal rigidity; paralysis of the left palate was present. Speech was nasal. The temperature rose to 102 F. for five days. On the fifth day the respirations gradually became depressed and finally ceased for forty-five seconds. An immediate lumbar puncture was performed and a small amount of spinal fluid removed, not under increased pressure. Caffeine was given. The patient responded and after a twelve hour period the respirations were within normal limits. Left facial paralysis was noted on the ninth day. Nasal speech persisted and was present at the time of discharge. Treatment was symptomatic; feedings were by the Levine tube for four days. Spinal fluid, 140 cells per cubic millimeter; 90 per cent monocytes; protein 68 mg. per hundred cubic centimeters. Discharged on Oct. 8, 1941. No follow-up.

CASE 13.—J. B., a 13 year old white boy, was admitted on Sept. 1, 1941 with a six day history of nausea and vomiting and a three day history of stiff neck and sore throat. There were nuchal rigidity, nasal voice, nasal regurgitation and paralysis of the right palate. The temperature rose to 102 F. for three days. Right facial weakness was noted on the twenty-fifth hospital day. Treatment was symptomatic; feedings were given by the Levine tube for six days. Spinal fluid, 50 cells per cubic millimeter; 100 per cent mononuclears; protein 42 mg. per hundred cubic centimeters. Disclarged on September 24. Follow-up, Dec. 22, 1941, nasal speech; weakness of right palate; right lower facial weakness; weakness of both sternomastoids, left weaker than right; substitution noted on neck flexion; weakness of lower abdominal muscles.

Case 14.—A. H., a 10 year old white boy, was admitted on Aug. 15, 1941 with a two day history of vomiting, headache, stiff neck, nasal speech and difficulty in swallowing. There were slight nuchal rigidity, mild pharyngeal injection, nasal voice, paralysis of the left palate and nasal regurgitation. A low grade fever persisted for three days. Treatment was symptomatic; feedings were given by the Levine tube for four days. Spinal fluid, 38 cells per cubic millimeter; 80 per cent polymorphonuclears; 20 per cent lymphocytes; protein 39 mg. per hundred cubic centimeters. Discharged to convalescent home on September 25. Follow-up, Dec. 17, 1941, revealed that occasional "pins and needles" sensation in both lower extremities associated with weakness and "muscle pain" in right thigh had been noted by the patient. There were weakness of the left palate and slight rotation of the dorsal spine to the left, not notable after exercise.

Case 15.—Z. M., a 10 year old white boy, admitted on Sept. 10, 1941 with a five day history of headache, fever, pain in the back and nasal regurgitation, had nuchal rigidity, weakness of the right palate and nasal regurgitation. The temperature rose to 101 F. for three days. Treatment was symptomatic. Levine tube feedings were not necessary. Spinal fluid, 170 cells per cubic millimeter; 95 per cent mononuclears; protein 45 mg. per hundred cubic centimeters. Discharged on October 2. Follow-up, Dec. 17, 1941, stuttering had been noted since discharge. The posture was poor; there was weakness of the right palate.

#### BULBAR WITH NECK WEAKNESS

Case 16.—E. B., an 11 year old white boy, admitted on Sept. 11, 1941 with a four day history of headache, vomiting, stiff neck, difficulty in swallowing and masal speech, was acutely ill; right palatal paralysis was present and the gag reflex was absent. Temperature rose to 101.2 F. for four days. Sternomastoid weakness was noted on September 28. Feedings were given by the Levine tube for eight days. Treatment was symptomatic. Spinal fluid, 34 cells per cubic millimeter; 100 per cent monocytes; protein 39 mg. per hundred cubic centimeter. Discharged on Oct. 5, 1941. No follow-up.

#### BULBAR AND SPINAL

Case 17.—E. R., a 6½ year old white girl, admitted on Aug. 16, 1941 with a three day history of headache, stiff neck, sore throat and difficulty in speaking, was acutely ill; right palatal weakness, a loud systolic murmur over the entire precordium and some cardiac enlargement were present; there was no difficulty in swallowing. Temperature rose to 102 F. for two days. Weakness of the anterior abdominal muscles had been noted during the last week. Treatment was symptomatic; parenteral fluids were given. Spinal fluid, 70 cells per cubic millimeter; 80 per cent lymphocytes; protein 28 mg. per hundred cubic centimeters. Discharged on Aug. 29, 1941. Follow-up, Dec. 11, 1941, spasm of the back muscles and weakness of the abdominal muscles; patient wearing a surgical corset for weakness of the anterior abdominal muscles.

### SPINAL

Case 18.—L. L., a 7½ year old white boy, admitted on Aug. 13, 1941 with a three day history of stiff neck, fever, constipation and weakness of the right arm, had absent left biceps and both triceps reflexes, weakness of the right biceps and triceps, poor grip and weakness of the interossei. The patient was placed on a Bradford frame with the right arm placed in a Toronto splint; arm removed every four hours for "skin care." There was beginning return of muscle power on September 4. Spinal fluid, 50 cells per cubic millimeter, 75 per cent lymphocytes; protein 32 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 13, 1941. Follow-up, February 1942, limitation of motion at elbow, weakness and atrophy of intrinsic muscles.

Case 19.—S. S., an 18 month old white boy, admitted on Aug. 23, 1941 with an eight day history of fever, irritability and weakness of the right leg, had flaccid paralysis of the entire right leg with no atrophy or muscle tenderness. The course was afebrile. A plaster cast was applied to the right leg on August 27. Spinal fluid, 80 cells per cubic millimeter; 95 per cent lymphocytes; protein 18.8 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital Sept. 22, 1941. Follow-up, February 1942, good cosmetic result; fair return of function.

Case 20.—M. R., a 3½ year old white boy, admitted on Aug. 18, 1941 with an eight day history of headache, stiff neck, irritability, fever and weakness of the right leg, had paralysis of the right leg and weakness of the left leg. Temperature rose to 100.4 F. daily for three and one-half weeks. Treatment, casts applied to both legs. Lumbar puncture was not done. Transferred to Orthopedic Hospital on Sept. 1, 1941. Follow-up, March 1942, atrophy of the right leg; shortening of the achilles tendon on the right; muscle power good; left leg normal.

CASE 21.—M. McL., a 17 year old white youth, admitted on Aug. 26, 1941 with a three day history of fever and stiffness of the neck and back, had nuchal rigidity, weakness of both quadriceps and both peroneal groups, weakness of the right thigh adductors and abductors and complete paralysis of the right

hamstrings; he was unable to lift either leg off the bed. Temperature rose to 103.2 F. for one week. Casts were applied to both legs. Spinal fluid, 42 cells per cubic millimeter; 50 per cent mononuclears; protein 83 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 20, 1941. Follow-up, March 1942, limitation of motion at the right knee and right hamstring contracture.

Case 22.—G. D. (brother of D. D., patient 6), a 3 year old white boy, admitted on Aug. 28, 1941 with an eight day history of fever, pain in the back of neck and weakness of the right foot, had paralysis of the right lower leg. Temperature occasionally rose to 100.2 F. during the first two weeks. The patient was placed on a Bradford frame and the right leg placed in a Toronto splint. Spinal fluid, 72 cells per cubic millimeter; 70 per cent lymphocytes; protein 62 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital Sept. 26, 1941. Follow-up, March 1942, moderate atrophy of the right lower leg; shortening of the right achilles tendon.

Case 23.—E. A. B., a 6 year old white girl, admitted on Aug. 28, 1941 with a three day history of vomiting, fever, headache and weakness of the left arm, had paralysis of the left deltoid, weakness of the upper trapezius, biceps and triceps, poor grip and inability to flex the head. Temperature rose to 103 F. for two days. The patient was able to lift the head on September 16. Treatment, Bradford frame; left arm in a Toronto splint. Spinal fluid, 160 cells per cubic millimeter; 100 per cent lymphocytes; protein 35 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 26, 1941. No follow-up.

Case 24.—L. C., a 3 year old white girl, admitted Aug. 8, 1941 with a six day history of fever, irritability, numbness and finally paralysis of the left arm, had weakness of the entire left arm with slight power in the hand and fingers. There was improvement in the power of the grip during the hospital stay. Treatment, Bradford frame; Toronto splint to the left arm. Spinal fluid, 170 cells per cubic millimeter; 80 per cent monouclears; protein 43 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 12, 1941. Follow-up, March 1942, limitation of motion at the elbow; power of muscles returning; gross substitution in abducting arm.

Case 25.—A. B., an 8 year old Negro boy, admitted on Aug. 14, 1941 with a three day history of headache, abdominal pain and inability to walk on the right leg, had nuchal rigidity and complete paralysis of the right leg. Temperature occasionally rose to 100 F. Treatment, Bradford frame; right leg in a Toronto splint. Spinal fluid, 165 cells per cubic millimeter; 95 per cent monocytes; protein 47 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital Sept. 17, 1941. Follow-up, March 1942, limitation of motion at knee; atrophy of thigh and calf muscles; function poor; supports weight with decided limp.

CASE 26.—V. C., a 5 year old white boy, admitted on Aug. 16, 1941 with a five day history of pain, fever, vomiting and paralysis of the right arm, had complete paralysis of the right arm and shoulder, weakness of the entire left arm and shoulder, nuchal rigidity and inability to flex the neck. The course was afebrile. The patient was irritable until casts were applied. Treatment, cast applied which covered neck, both arms and trunk. Spinal fluid, 80 cells per cubic millimeter; 80 per cent lymphocytes; protein 29 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 23, 1941. Follow-up, March 1942, left upper extremity: atrophy, deltoid function fair, substitution with upper trapezius; right upper extremity: considerable atrophy, very slight deltoid function, flexion contractures of fingers, vascular changes in hand.

Case 27.—Y. D., a 3½ year old white girl, admitted on Aug. 2, 1941 with a six day history of "sore throat," fever, weakness, inability to lift the left arm and pain in the abdomen, had complete paralysis of the left upper arm and forearm muscles and weakness of the left hand. Weakness of the right arm and neck developed during the first week of hospitalization. Temperature rose to 101 F. for three days and to 100.4 F. nightly for three weeks. The patient was placed on a Bradford frame with Toronto splints applied to both arms. Spinal fluid, frame with Toronto splints applied to both arms. Spinal fluid, 110 cells per cubic millimeter; 98 per cent monocytes; protein

73 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 25, 1941. Follow-up, February 1942, right arm essentially normal; poor cosmetic result of left hand, with some vascular disturbance; scapular rotation during abduction of arm; function poor; substitution noted.

Case 28.—H. P., a 5 year old white girl, admitted on Aug. 21, 1941 with a five day history of "limping on right foot" and vomiting, had paralysis of the right iliopsoas and quadriceps and "tightness" of the right hamstrings and paralysis of the dorsiflexors. The course was afebrile. A cast was applied to the right leg. Spinal fluid, 60 cells per cubic millimeter; 100 per cent monocytes; protein 30 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Oct. 2, 1941. Follow-up, February 1942, abduction limp, shortening of the right hamstrings.

Case 29.—H. M., a 16 year old white youth, admitted on Aug. 26, 1941 with a four day history of headache, stiff neck, weakness of both legs and inability to void, was acutely ill and had nuchal rigidity. Both legs were paralyzed completely and the bladder was distended. A retention catheter was applied from day of admission to September 6. Sulfathiazole was given in average doses to prevent possible urinary infection, and discontinued after twenty-four hours because of gross hematuria. Casts were applied to both legs. Spinal fluid, 200 cells per cubic millimeter; 100 per cent monocytes; Pandy test positive. Transferred to Orthopedic Hospital on Oct. 3, 1941. Follow-up, February 1942, quadriceps shortening; limitation of motion at knee; function poor.

Case 30.—A. T. (brother of F. T., patient 31), an 8 month old white boy, admitted on Aug. 16, 1941 with a five day history of fever, irritability and "paralysis" of the left leg, was pale, malnourished and had left "foot drop" and nuchal rigidity. The course was afebrile. There was a progressive weight gain. A cast was applied to the left leg. Spinal fluid, 22 cells per cubic millimeter; 100 per cent monocytes; protein, 114 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Oct. 3, 1941. Follow-up, March 1942, considerable atrophy; left achilles contracture; shortening of the left hamstrings.

Case 31.—F. T. (brother of A. T., patient 30, with significant family history: three siblings have a muscular dystrophy), a 3 year old white boy, admitted on Aug. 12, 1941 with a four day history of fever, weakness of the right leg and "incontinent of feces," whose calf muscles had been getting large during the year prior to admission but no weakness had been observed before present illness, was acutely ill and was unable to void. Nuchal rigidity and paralysis of the right leg were present. Bladder function returned one week after admission. Temperature rose to 101 F. for three days. Treatment, catheterization; Toronto splint applied for nineteen days, then cast was applied. Spinal fluid, 85 cells per cubic millimeter; 95 per cent monocytes; protein 34 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Oct. 10, 1941. No follow-up.

CASE 32.-H. T., a 17 year old white youth, with an eleven day history of nausea, vomiting, diarrhea, fever, headache and stiff neck, had been admitted to a local hospital on Aug. 18, 1941 and transferred to Willard Parker Hospital on August 21 when pain and paralysis of the lower extremities developed. Nuchal rigidity, bilateral spasm of the hamstrings and paralysis of both lower extremities were present. On August 24 respirations became shallow and labored, owing to diaphragmatic paralysis and intercostal weakness. On September 1 the intercostals were also paralyzed, as were the abdominal muscles. Loss of weight was rapid and the patient remained cachectic during the entire hospital stay. He was placed in a respirator on August 24 and was there continuously until September 26. when he was able to remain out of the respirator for thirty minutes to one hour at a time. During this period the patient's course was "stormy." Mucus accumulated in the pharynx, which the patient was unable to cough up. Frequent bouts of vomiting and abdominal pain occurred. On two occasions the patient appeared moribund and while in the respirator became cyanotic.

On October 15 hot packs were started to the entire body but given more frequently to the chest and abdomen. One week later, chest excursion was increased. At the onset of this

treatment the patient was "rigid" and could not be moved without pain. A gradual improvement in comfort and outlook was noted. During the first week in December, when some relaxation had been accomplished, an attempt at complete evaluation of the muscles showed complete paralysis of both lower extremities with the exception of the right sartorius and iliopsoas and left plantar flexors of the toes. The diaphragm and abdominal muscles were paralyzed. Chest excursion was greater on the left side than on the right. Accessory muscles of the neck and shoulders were used with each respiration. Muscles of the left upper extremity were good and those of the right fair. Contractures were noted throughout the entire body, so that passive motion to any degree was not possible. On December 20 the patient was removed from the respirator.

Examination of the spinal fluid showed 127 cells per cubic millimeter; 78 per cent polymorphonuclears; 22 per cent lymphocytes; protein 46.3 mg, per hundred cubic centimeters.

The patient was transferred to the Orthopedic Hospital on Jan. 20, 1942.

A follow-up examination was made in March 1942. Some weight gain was noted. The patient was able to roll over in bed. Accessory muscles of respiration were not used as extensively when the patient was at rest. Passive motion could be carried out to a greater degree. There was no pain. Atrophy was extreme. There was considerable shortening of the thigh adductors, hamstrings and pectoral muscles.

N. B.: This case is not included with those in which the Kenny treatment was given because until further relaxation takes place the necessary passive exercises and reeducation cannot be carried out.

Case 33.—M. M., a 7 year old white boy, admitted on Sept. 15, 1941 with a five day history of sore throat, fever, pain and weakness of the right arm, was acutely ill, with nucleal rigidity, weakness of the right biceps, pectoralis, and intrinsic hand muscles. Temperature rose to 101.8 F. for five days. The patient was placed on a Bradford frame and a Toronto splint was applied. Spinal fluid, 110 cells per cubic millimeter; 55 per cent monocytes; Pandy test plus 1. Transferred to a private physician on Oct. 9, 1941. No follow-up.

Case 34.—V. S., an 8 year old white boy, admitted on Sept. 26, 1941 with an eight day history of pains in both legs and lower part of the back, had extreme weakness of all muscles of both lower extremities. The course was afebrile. Hot pads were started on September 27; no passive exercises or reeducation. Spinal fluid, 6 cells per cubic millimeter (monocytes); protein 61 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital Oct. 6, 1941. No follow-up.

CASE 35.—H. P., a 5 year old white boy, admitted on Sept. 12, 1941 with a two day history of fever, abdominal pain and weakness of the left leg, had nuchal rigidity, paralysis of the left quadriceps and left iliopsoas and weakness of all other groups of muscles of the left leg. The course was afebrile. Treatment, Toronto splint applied. Spinal fluid, 125 cells per cubic millimeter; 95 per cent monocytes; protein, Pandy test plus 1. Transferred to Orthopedic Hospital on Sept. 25, 1941. Follow-up in March 1942 revealed considerable atrophy of the left thigh; limitation of motion at the left knee; slight right scoliosis; "tipped pelvis."

Case 36.—D. F., a 14 year old white youth, admitted with a seven day history of nausea, vomiting, fever, stiff neck and weakness of the left leg, had nuchal rigidity, weakness of all four extremities and a slight diminution of chest excursion. The course was afebrile. Intercostal weakness was improved. Treatment, Bradford frame; both arms and both legs in Toronto splints. The spinal fluid report is not available. Transferred to private physician on Sept. 23, 1941. No follow-up.

Case 37.—H. J., a 13 year old white youth, admitted on Aug. 22, 1941 with an eight day history of fever and pain in the legs and a one day history of paralysis of both legs and inability to void, was acutely ill, with nuchal rigidity, complete paralysis of both legs and a distended bladder. Bladder function returned after one week; the course was afebrile. Treatment, retention catheter in place for one week; sulfathiazole to prevent possible bladder infection; discontinued after twenty-four hours because of hematuria; Toronto splint to both legs. Spinal fluid, 103

cells per cubic millimeter; 50 per cent lymphocytes; protein 19.2 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 22, 1941. No follow-up.

Case 38.—P. E., a 20 month old white girl, admitted on Aug. 13, 1941 with a five day history of sore throat, fever irritability, inability to stand and weakness of the left arm, was acutely ill, with weakness of the left arm and paralysis of both legs. Temperature rose to 100.4 F. daily for four weeks. At time of discharge, there was some return of function of the left forcarm and limitation of passive motion at both knees. Treatment, Bradford frame; Toronto splints to both legs and left arm. Spinal fluid, 25 cells per cubic millimeter; 100 per cent monocytes; protein 58 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital Sept. 10, 1941. No follow-up.

Case 39.—N. K., a 7 year old white girl, admitted on Sept. 10, 1941 with a two day history of inability to move the left leg, had slight nuchal rigidity, paralysis of the entire left leg including the gluteal muscles and weakness of the right leg. Temperature rose to 101 F. for three days. Treatment, Toronto splints to both legs. Spinal fluid, 165 cells per cubic millimeter; 98 per cent monocytes; protein 92 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 29, 1941. No follow-up.

Case 40.—J. D., a 2 year old white girl admitted on Sept. 6, 1941 with an eight day history of fever, diarrhea, anorexia, list-lessness and weakness of the right arm, was irritable and had paralysis of the right biceps, triceps and deltoid. Temperature rose to 101 F. for two days. There was some return of triceps and biceps function. Treatment, Bradford frame; Toronto splint to the right arm. Spinal fluid, 70 cells per cubic millimeter; 75 per cent monocytes; protein 22 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 25, 1941. No follow-up.

Case 41.—J. K., a 4 year old white boy, admitted on Sept. 4, 1941 with a four day history of pain in the right leg, headache and nausea, had nuchal rigidity, moderate pharyngeal injection and paralysis of the right leg. The course was afebrile. Treatment, Toronto splint to the right leg. Spinal fluid, 126 cells per cubic millimeter; 100 per cent monocytes; protein 30 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 24, 1941. Follow-up in March 1942 revealed paralysis of right quadriceps; shortening of the right hamstrings; contracture of the right achilles tendon.

CASE 42.—P. D., a 3 year old white boy, admitted on Sept. 8, 1941 with a three day history of fever, anorexia, stiff neck, vomiting and weakness of the right leg, had paralysis of the right leg. Temperature rose to 100.8 F. for four days. Treatment, Toronto splint to the right leg. Spinal fluid, traumatic tap. Transferred to Orthopedic Hospital on Sept. 29, 1941. No follow-up.

Case 43.—M. S., a 28 year old white woman, admitted on Aug. 31, 1941 with a six day history of anorexia, diarrhea, pain in both thighs and finally inability to stand, had nuchal rigidity, paralysis of both lower extremities and weakness of both deltoids. The patient was very obese. Temperature rose to 101 F. for four days. All extremities were placed in the ventral position and a low caloric diet was given. Spinal fluid, 300 cells per cubic millimeter; 100 per cent monocytes; protein 94 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Sept. 22, 1941. Follow-up in March 1942 revealed practically no function in muscles of lower extremities; limitation of motion at knee and ankle joints due to contractures.

### KENNY TREATMENT NONPARALYTIC

Case 44.—I. S., an 11 year old white girl, admitted on Oct. 17, 1941 with a seven day history of fever, nausea, dizziness and stiffness of the neck and back, had been given sulfathiazole prior to admission for four days. She was moderately ill. There was spasm of the dorsum of the neck, back and hamstrings. Temperature rose to 103 F. for one week. Disappearance of spasticity occurred within ten days. Hot packs were applied to the entire back from the head to the heels from October 19 to October 30. Spinal fluid, 245 cells per cubic millimeter; 95 per cent monocytes; protein 40 mg. per hundred cubic centimeters. Discharged on November 1. Follow-up,

Decèmber 1941, "occasional cramps" in hamstrings and occasional back pain; no spasm noted on physical examination and no scoliosis.

Case 45.—M. V., a 22 year old white woman, admitted on Sept. 23, 1941 with an eight day history of sore throat, headache and a one day history of stiffness of the neck, had a mild pharyngeal infection, with spasm of the dorsum of the neck and hamstrings. Spasm was relieved after seven days. Hot packs were applied to the dorsum of the neck and hamstrings from September 29 to October 7. Spinal fluid, 245 cells per cubic millimeter; 100 per cent monocytes; protein 37 mg. per hundred cubic centimeters. Discharged on Oct. 8, 1941. No follow-up.

### BULBAR WITH NECK WEAKNESS

CASE 46.-W. K., a 7 year old white boy, admitted on Aug. 8, 1941 with a three day history of vomiting, inability to swallow, nasal regurgitation and pain and stiffness of the neck and back, was acutely ill and had nasal speech, nasal regurgitation, nuchal rigidity, inability to lift the head, and left palatal and left facial weakness. The temperature was up to 102 F. for four days. Feedings were given by the Levine tube for six days. The patient attempted to lift his head with pronounced substituting with the shoulders and platysma. The corners of the mouth were drawn downward. The sternomastoids were "thin bands." After three weeks of Kenny treatment, contractions were felt in the sternomastoids during passive movements. The sternomastoids gradually increased in size. Strength of contractions continued to improve but substitution persisted. Treatment was bulbar: symptomatic; Kenny treatment was started on September 23. Spinal fluid, 95 cells per cubic millimeter; 95 per cent monocytes; protein 73 mg. per hundred cubic centimeters. Follow-up, January 1942, function good; atrophy slight; substitution present.

Case 47.-F. F., an 11 year old white girl, admitted on Aug. 21, 1941 with a three day history of fever, nausea, vomiting, nasal regurgitation and nasal speech, was critically ill and toxic; there was paralysis of the left palate and both sternomastoids. The patient's condition remained critical during the first week, with pronounced lethargy and fever up to 103 F. There was rather rapid improvement in the second week. Neck flexion was done with substitution, with the shoulders and platysma. Both sternomastoids showed atrophy, the left more than the right. Spasm of the hamstrings was noted on September 23. The Levine tube was used for six days. Hot packs were applied to the dorsum of the neck and hamstrings from September 27. Passive motion and reeducation were started on September 28. Spinal fluid, 160 cells per cubic millimeter; 95 per cent monocytes; protein 100 mg. per hundred cubic centimeters. The patient was transferred to the Orthopedic Hospital on December 12. Kenny treatment continued. Follow-up, February 1942, function good; moderate atrophy in left sternomastoid; very slight amount of substitution.

Case 48.—J. B., a 6 year old white boy, admitted on Oct. 7, 1941 with a four day history of headache, fever, nasal regurgitation and difficulty in breathing, was moderately ill; there was occasional nasal regurgitation; on October 11, weakness of the right palate and left sternomastoid. The temperature rose to 101 F. for four days. The patient was able to take fluids by mouth in small amounts. Improvement in sternomastoid function was noted during the first month. Hot packs, passive movements and reeducation were started on October 13. Discharged on November 8 with good function of both sternomastoids; no atrophy. Follow-up, Dec. 17, 1941, strength of sternomastoids unchanged; very slight spasm of the dorsum of the neck and the upper trapezius. The patient was referred to the orthopedic clinic for further care.

CASE 49.—G. T., a 4 year old white boy, admitted on Nov. 20, 1941 with a four day history of fever, sore throat, cough, hoarseness and difficulty in breathing, was acutely ill, with pronunced nuchal rigidity, nasal regurgitation and nasal speech, a large amount of mucus accumulated in the pharynx, occasional cyanosis, and left palatal weakness. Neck weakness on admission could not be evaluated. A bilateral purulent otitis media (hemolytic Staphylococcus aureus) developed on December 4. There was bilateral sternomastoid weakness, marked spasm of the dorsum of the neck and moderate hamstring spasm on December

ber 2. During the third week in December, relaxation of the dorsum of the neck and hamstrings had been accomplished. Substitution—"cupping of the shoulders"—was noted. Voluntary contractions in the sternomastoids were noted in the first week in January. Movements were coordinated. Feedings were by the Levine tube for eighteen days. Hot packs were started on November 30. Passive motion and reeducation were started on December 2. Spinal fluid, 50 cells per cubic millimeter; 98 per cent monocytes; protein 56 mg. per hundred cubic centimeters. The patient was transferred to the Orthopedic Hospital on January 19. Follow-up in February 1942 revealed continued improvement in strength of the sternomastoids; no atrophy and no substitution.

CASE 50 .- R. O'D., a 22 year old white woman, admitted on Dec. 28, 1941 with a three day history of nausea, vomiting, stiff neck and nasal regurgitation, was acutely ill. The temperature was 104 F. There was a large accumulation of mucus in the pharynx, nasal regurgitation, spasm of the dorsum of the neck and right palatal weakness. Feedings were given by the Levine tube for five days. Pronounced incoordination on attempting neck flexion was noted soon after admission. The patient was always capable of sternomastoid contraction. Spasm of the dorsum of the neck subsided and recurred during the first week. Spontaneous painful contractions of the hamstrings were noted by the patient. Neck coordination improved rapidly, after relaxation of the dorsum of the neck during the third week. Kenny treatment was started on January 1. The patient was transferred to the Orthopedic Hospital on January 29. Follow-up in January 1942 revealed continued improvement; no atrophy; no substitution; nasal speech,

### BULBAR AND SPINAL

Case 51 .-- R. G., an 8 year old white girl, admitted on Sept. 7, 1941 with a seven day history of sore throat, fever, stiff neck, inability to swallow, incontinence of urine and nasal regurgitation, was dehydrated and critically ill; the temperature was 104 F. Nasal regurgitation, nasal speech and inability to flex the neck were observed. During the first five days the patient continued to appear critically ill. The temperature rose to 104 F. for five days. Feedings by the Levine tube and parenteral administration of fluids were given for five days. On September 15 the patient was able to flex the neck, but this action was performed awkwardly. The patient seemed unable to initiate the movement and would throw her head forward. After two weeks of Kenny treatment, smooth flexion of the neck was noted. Slight weakness of the abdominal muscles and loss of the normal lumbar curve were noted on October 17. Beginning left scoliosis was noted on November 12. Active left lateral trunk flexion was limited on December 9. The Kenny treatment was again instituted on December 10. The spinal fluid report was not available. The patient was transferred to the Orthopedic Hospital on December 12. Follow-up in January 1942 revealed improvement in the abdominal and back muscles; disappearance of scoliosis; neck function good.

CASE 52.-N. G., a 10 year old white girl, admitted on Sept 21, 1941 with a three day history of fever, stiff neck, drowsiness and difficulty in raising the head, had nuchal rigidity, thick speech, inability to raise the head, hamstring spasm and minimal weakness of the left palate. On September 8 there was paralysis of the right dorsiflexors of the foot. The temperature rose to 103 F. for four days. Nasal regurgitation occurred once on the second hospital day. Hot packs to the entire back were started on October 1 and reeducation two days later. Spasm of the neck, back and hamstrings responded during treatment. Spasm of the right gastroenemius was persistent so that more frequent packs were used during the last week in the hospital. At the time of discharge, function and power had returned to the sternomastoid. Slight substitution was noted. There was no atrophy. Function and power returned it, the right peroneal group and beginning return of function in the right anterior tibial. Spinal fluid, 130 cells per cubic millimeter; 95 per cent monocytes; protein 52 mg. per hundred cubic centimeters. The patient was transferred to the Orthopedic Hospital on December 12. Follow-up, February 1942, neck flexion normal; continued improvement in dorsiflexion of the right foot with continued relaxation of the right gastrocnemius spasm.

CASE 53 .- H. R., a 10 year old white boy, admitted on Sept. 18, 1941 with a two day history of "generalized aches and pains," vomiting, difficulty in swallowing, nasal regurgitation, abdominal pains and fever, had deviation of the tongue to left, right facial paralysis (peripheral type) and inability to cough or swallow. The temperature rose to 101 F. for three days. Parenteral fluids were given. Feedings were given by the Levine tube for twelve days. On September 22 weakness of the sternomastoids was noted and on September 25 paralysis of the entire left deltoid, biceps, triceps and forearm muscles. Kenny treatment was started on September 25. Contractions were felt in the deltoid during passive movements after one month. Function of triceps, biceps and forearm muscles returned during the first three weeks. At discharge there was weakness of the left deltoid and left triceps with spasm of the left upper trapezius noted during passive exercises. Spinal fluid, 105 cells per cubic millimeter; 75 per cent monocytes; protein 51 mg. per hundred cubic centimeters. The patient was transferred to the Orthopedic Hospital on November 26. Follow-up in February 1942 revealed complete range of motion of the left arm with slight weakness of the left deltoid; residual right facial weakness; no atrophy.

CASE 54,-B. F., a 13 year old white girl, admitted on Sept. 26, 1941 with a four day history of fever, headache, pain in the back, nausea, epigastric pain, nasal regurgitation and weakness of the left arm, appeared moderately ill. Examination revealed left palatal weakness, spasm of the dorsum of the neck and back and hamstrings, nasal voice, weakness of the left triceps, biceps and forearm muscles, paralysis of the left deltoid and spasm of the left suprascapular group. The head was held toward the left. No nasal regurgitation was noted. Kenny treatment was started on September 26. Recurrent spasm of the left pectorals, upper trapezius and latissimus dorsi and both hamstrings occurred. There were incoordination and substitution on attempting left arm abduction. Contractions of the deltoid were felt during passive exercises after three weeks. Spasm of the left pectoral muscles responded to treatment after two months. On November 28 spasm of the erector spinae group on the left occurred, giving a beginning right lumbar scoliosis. Treatment for this was started immediately. Spinal fluid. 160 cells per cubic millimeter; 80 per cent monocytes; protein 74 mg. per hundred cubic centimeters. The patient was transferred to the Orthopedic Hospital on December 12. Follow-up in March 1942 revealed good deltoid function, no limitation of motion; very slight atrophy of left shoulder.

#### SPINAL

Case 55.-J. M., a 19 year old white youth, admitted on Sept. 10, 1941 with a six day history of pain in the back of the neck, vomiting, fever, weakness of the left arm and dyspnea, was moderately dyspneic. Examination revealed no cyanosis, cough good, no intercostal function, diaphragmatic action weak and irregular, ballooning of the upper abdomen with each expiration and weakness of both upper extremities. Both arms were placed in Toronto splints from September 10 to 28. The patient exhibited marked discomfort while in splints. On September 28 spasm was noted in both pectorals, left latissimus dorsi, left biceps, back and both hamstrings. There was weakness of the pectoral muscles and left biceps. Kenny treatment was started on September 28. Two weeks later pectoral spasm had been partially released and intercostal function returned. There was paralysis of the left serratus anterior with winged scapula. At the time of discharge there was fair function in the left deltoid. Passive abduction of the left arm was possible without substitution or spasm through 90 degrees; the right deltoid was normal. Winging of the scapula was less prominent, and there was less ballooning of the upper abdomen. Hamstring and back spasm had subsided. Spinal fluid, 85 cells per cubic millimeter; 100 per cent monocytes; protein 52 mg. per hundred cubic centimeters. The patient was transferred to the Orthopedic Hospital on December 15. Follow-up in January 1942 revealed winging of the left scapula much improved; ballooning of the upper abdomen less prominent; spasm of the left pectorals minimal; left deltoid function good.

Case 56.—C. S., an 8 year old white girl, was admitted on Sept. 9, 1941 with a five day history of diarrhea, fever, headache, abdominal pain, stiff neck and weakness of the right arm. The

patient was afebrile. There were weakness of both arms and inability to flex the neck. Toronto splints were applied to both arms for three weeks. Kenny treatment was started September 27. The patient was very uncomfortable in Toronto splints. The arms were normal after one and one-half months but initiating of neck flexion was not possible. The patient frequently forgot from day to day how sternomastoid action was performed. At the time of discharge, slight substitution was noted during neck flexion. Spinal fluid, 125 cells per cubic millimeter; 100 per cent monocytes; protein 40 mg. per hundred cubic centimeters. The patient was transferred to the Orthopedic Hospital on December 13. Follow-up in February 1942 revealed minimal weakness of the sternomastoids as tested against force; no atrophy; minimal substitution.

CASE 57.-C. O., a 9 year old white girl, admitted on Oct. 4, 1941 with a seven day history of fever, vomiting, constipation and pain in the right leg, was unable to extend the right leg on the day before admission. Examination revealed spasm of both hamstrings (right greater than left), spasm of the right gastrocnemius, weakness of the right quadriceps, dorsiflexors of the foot and gluteal muscles and spasm of the right quadratus lumborum and erector spinae group with marked scoliosis. The patient was unable to contract the left quadratus lumborum. The temperature rose to 100.2 F. for two weeks. Kenny treatment was started on admission. Scoliosis was not apparent after two weeks. Function of the right dorsiflexors returned during the first week and beginning return of right quadriceps function in the third week. Hamstring spasm persisted until the second month. At discharge there was complete range of passive motion, right quadriceps poor. Spinal fluid, 5 cells per cubic millimeter; 100 per cent monocytes; protein 55 mg. per hundred cubic centimeters. The patient was transferred to the Orthopedic Hospital on December 13. Follow-up in January 1942 revealed the right quadriceps improving in power; no atrophy, no substitution.

CASE 58.-V. C., a 13 year old white boy, admitted on Sept. 9, 1941 with a two day history of headache, fever and pain in the legs, knees and back, had slight weakness of both quadriceps and the right abductors of the thigh, and spasm of the neck, back and hamstrings. The temperature rose to 102 F. for four days. Both legs were placed in Toronto splints. Analgesics and sedatives were given. Right purulent otitis media was present during the first week. Splints were removed on September 22. Muscle power was good. Spasm persisted so that the patient was unable to sit up in bed. Kenny treatment was started on September 27. Hot baths were given two to three times a day in addition to packs from October 20. relaxation of spasm was noted. At the time of discharge the patient had spasm of the back muscles. Spinal fluid, 180 cells per cubic millimeter; 100 per cent monocytes; protein 99 mg. per hundred cubic centimeters. Discharged on November 1. Follow-up in January 1942: Hot baths were continued at home; occasional "cramps" in the hamstrings; difficulty in climbing stairs; beginning right dorsal scoliosis. The patient was referred to the orthopedic clinic.

CASE 59.—M. K., a 19 year old white youth, admitted on Oct. 24, 1941 with a four day history of fever, stiff neck and weakness of the right leg, had spasm of the neck, back and hamstrings and minimal weakness of the right thigh muscles. Kenny treatment was started on admission. Spasm started to relax after two weeks. No weakness was detected at the end of one month. On discharge slight spasm continued in the back and hamstrings. Spinal fluid, 100 cells per cubic millimeter. The patient was transferred to the Orthopedic Hospital on December 13. Follow-up in February 1942 revealed that the back and shoulders were held somewhat stiffly in walking; slight persistent spasm of the back and hamstrings.

CASE 60.—F. F., an 8 months old white boy, admitted on Oct. 31, 1941 with a nine day history of fever, vomiting, constipation, stiff neck, "limpness" of the right leg and inability to sit up, had spasm of the dorsum of the neck and back and weakness of the right quadriceps and right hamstrings. The patient was afebrile. Kenny treatment was started on admission. Relaxation of spasm occurred during the first three weeks. At the time of discharge, the patient was again able to sit up. There was minimal weakness of the right lateral hamstrings. The right quadriceps was normal. Spinal fluid, 40 cells per cubic milli-

meter; 95 per cent monocytes; protein 67 mg. per hundred cubic centimeters. Discharged on Dec. 19, 1941. To be followed in the orthopedic clinic, no further follow up.

CASE 61.-K. Z., a 3 year old white boy, admitted on Oct. 7, 1941 with an eleven day history of sore throat, fever up to 105 F., pain in the neck, back and knees and weakness of the legs, had had epileptiform convulsions since infancy three to four times a year and speech defect. The child was critically ill and lethargic, with weakness of both legs. Examination one week after admission revealed paralysis of the abdominals and both quadriceps, weakness of other muscle groups of both lower extremities, poor neck flexion and irregularity in intercostal function. Spasm of the back and hamstrings was pronounced. Kenny treatment was started on admission. Spasm of the adductors and hamstrings was very persistent. Constipation was severe. Intercostal function was good after the second week. On discharge there were moderate weakness of the lower extremities and sternomastoids, paralysis of the abdominal muscles and persistent spasm of the dorsum of the neck, back and hamstrings. Spinal fluid, 57 cells per cubic millimeter; 100 per cent lymphocytes; Pandy test negative. The patient was transferred to Orthopedic Hospital on December 15. Follow-up in January 1942 revealed beginning contractions in the abdominal muscles during passive movements; persistent spasm of the back and hamstrings; neck flexion well performed; muscles of both lower extremities showed returning function.

Case 62.—J. W., a 7 year old white boy, was admitted on Oct. 2, 1941 with a history of headache, fever, stiff neck, vomiting and abdominal pain. These symptoms subsided and on the seventh day the patient was allowed out of bed. At that time weakness of the left foot was noted. There was spasm of the left hamstrings and left gastrocnemius, with shortening of the achilles tendon. Contractions were felt in the dorsiflexors of the foot on active movements. Severe spasm persisted for one month. There was some limitation on motion on passive dorsiflexion. At discharge dorsiflexion was poor. Spinal fluid, 65 cells per cubic millimeter; 98 per cent monocytes; protein 34 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Dec. 15, 1941. Follow-up in January 1942 revealed continued improvement in dorsiflexion of the left foot and continued relaxation of spasm of the left gastrocnemius.

CASE 63.-M. J., a 12 year old white boy, admitted on Sept. 22. 1941 with a five days history of general malaise, anorexia, chills and fever and a two day history of inability to raise the right arm, had had since birth multiple hemangiomas of the right arm and shoulder and had received numerous sclerosing injections. On Aug. 24, 1941 excision of the right pectoral hemangiomas was performed. Coincident with the fourth day of the present illness, the patient had a secondary hemorrhage at the operative site. The right arm was tender and swollen, with many ecchymotic areas. Numerous nodules palpated along the course of the blood vessels. From the operative wound on the right side of the chest exuded serosanguineous material. (The patient had been admitted at the onset of the present illness to the hospital at which the operation had been performed. At that hospital the operative wound was opened and cultures taken which were found to be negative.) There were paralysis of the right deltoid and weakness of the biceps, triceps and forearm muscles. The blood pressure was 150/100 (both arms).

Complete bed rest was carried out with the arm on a pillow and the elbow flexed to an angle of 110 degrees for five weeks. Kenny treatment was started during the fifth week. Continued hemorrhage necessitated absolute immobilization. By the fortieth day, the operative wound had healed. At that time there was noted a biceps contracture, contracture of the forearm flexors and atrophy of the deltoid and shoulder girdle. The contracted biceps muscle was weaker than the triceps. After one month of the Kenny treatment extension of the forearm increased from 110 to about 160 degrees. All groups improved but the deltoid, which remained paralyzed. Hypertension was present at the time of discharge. Blood chemistry was normal and urinalysis was negative. Spinal fluid, 100 cells per cubic millimeter; 100 per cent lymphocytes; protein 80 mg. per hundred cubic centimeters. The patient was transferred to the urologic ward of a general hospital on Dec. 10, 1941 because of a suspicious pathologic condition revealed on an intravenous pyelogram. Follow-up revealed that the blood pressure had returned to normal during the third month after onset of the disease. No kidney disorder was found. The patient was being followed at the orthopedic clinic. Further follow-up was not available.

Case 64.-L. A., a 2 year old white boy, admitted on Nov. 2, 1941 with a seven day history of fever, chills, stiff neck and paralysis of the left lower extremity, had spasm of the dorsum of the neck and back and flaccidity of the left lower extremity. The Kenny treatment was given from admission. (Varicella developed on November 27 and was associated with cervical adenitis.) Relaxation was noted at the end of the second week. All muscle groups showed a slow return of function. Spasm of the right iliotibial band was noted during the first week and remained "tight" until the end of the first month. At the time of discharge muscle power in the left hamstrings, thigh adductors, abductors and flexors was fair and poor in the quadriceps, gastrocnemius and dorsiflexors of the foot. Spinal fluid, 30 cells per cubic millimeter; 100 per cent monocytes; protein 40 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Jan. 19, 1942. Follow-up in February 1942 revealed slow improvement; there was no spasm, no contracture and no

CASE 65.—A. C., a 2 year old white girl, admitted on Oct. 20, 1941 with a four day history of fever, listlessness, vomiting and weakness of the left foot, was afebrile and irritable and had weakness of the left quadriceps, gastrocnemius and gluteal muscles and paralysis of the dorsiflexors of the left foot and toes. Kenny treatment was started on admission. There was a return in all groups after one week. She stood well at one month and at the time of discharge her gait was normal. Spinal fluid, 65 cells per cubic millimeter; 100 per cent monocytes; protein 52 mg. per hundred cubic centimeters. Discharged on Dec. 19, 1941. Further follow-up was not available.

CASE 66 .- R. B., an 8 year old white boy admitted on Oct. 17, 1941 with a seven day history of sore throat, fever, pain and stiffness of the neck and back and weakness of both legs, was critically ill, anxious and perspiring freely. Extreme weakness of both lower extremities, irregular chest excursion and slight weakness of both arms were present. Kenny treatment was started on admission. Frequent packs were applied to the pectorals. During the first two days the patient's condition became worse. Respirations dropped to 12 per minute and remained there for more than eighteen hours. During this period there was complete intercostal paralysis. At the end of the first week intercostal action had returned. This was coincident with the beginning of relaxation of the severe pectoral spasm. Spasm was also severe in the hamstrings and adductors of the thigh and back. Right abdominal muscles were completely paralyzed and those on the left were weak. There was constipation. At discharge all groups had some return of function but spasm of the hamstrings and back was still present. The intercostals were normal. Spinal fluid, 40 cells per cubic millimeter; 100 per cent lymphocytes; globulin negative. Transferred to Orthopedic Hospital on Dec. 12, 1941. Follow-up in February 1942 revealed continued improvement in all groups: right abdominals had beginning contractures on passive motion; spasm of back was persistent.

CASE 67.-J. L., a 6 year old white girl admitted on Oct. 22, 1941 with a three day history of pain in the back of the neck, fever, vomiting and weakness of the right arm, was acutely ill, with spasm of the dorsum of the neck, back and hamstrings and complete paralysis of the left arm and shoulder girdle. Temperature rose to 102 F. for two days. During the first week weakness of the right lower extremity and paralysis of the abdominal muscles were noted. There was occasional vomiting during the first three weeks. Constipation was persistent. Spasm was noted in the paralyzed left triceps, pectorals and latissimus dorsi as well as in the hamstrings and thigh adductors. The Kenny treatment was started on admission. After one month beginning return of function was noted in the left hand and forearm muscles. At discharge there was complete range on passive motion of all groups and contractions were felt in the abdominal muscles during passive exercises. Spinal fluid, 175 cells per cubic millimeter; 100 per cent monocytes; protein 47 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Dec. 13, 1941. Follow-up in March 1942 revealed

almost complete return of abdominal muscle power; grip of the left hand was good, the left shoulder was completely paralyzed with beginning contraction in the biceps and triceps on passive exercises; no atrophy; cosmetic result good.

CASE 68 .- M. R., a 17 year old white girl, admitted on Oct. 22, 1941 with a four day history of headache, suprapubic pain, backache, fever, stiffness of the neck and paralysis of both lower extremities, had paralysis of the entire right lower extremity and weakness of the left lower extremity, paresthesias of the right lower leg and spasm of neck, back and hamstrings. Kenny treatment was started on admission. The patient was completely comfortable after twenty-four hours except for occasional paresthesias of the right leg. Power in the left lower extremity returned during the first two weeks. Spasm was noted in the paralyzed right thigh adductors. At discharge there was good range on passive motion at the right knee and ankle. There was minimal atrophy of the right calf muscles. Beginning contraction was noted in the thigh muscles on passive motion. Spinal fluid, 140 cells per cubic millimeter; 95 per cent monocytes; protein 52 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Dec. 13, 1941. Follow-up in March 1942 revealed good range on passive motion of the right leg; atrophy more pronounced than on discharge; quadriceps and hamstrings improving in function; beginning contractions in the gastrocnemius and peroneals on passive motion; beginning flexion deformity of the toes.

CASE 69 .- M. M., a 13 year old white girl, admitted on Oct. 21, 1941 with a five day history of fever, stiffness of both legs and of the right arm, dizziness and amnesia, was moderately ill, with slight weakness of the right triceps, quadriceps and iliopsoas; severe spasticity of the dorsum of the neck, back, both biceps, hamstrings, adductors of the thigh; paralysis of the abdominal muscles and glutei; poor diaphragmatic excursion. The Kenny treatment was started on admission. General relaxation started after one week. The patient was able to void after eighteen hours, so that catheterization was unnecessary. Spasm of the hamstrings, biceps and adductors of the thigh and back persisted. There was beginning relaxation after one Constipation was persistent. There was beginning return of diaphragmatic and abdominal muscle function during the sixth week. At discharge there was complete range on passive motion in all extremities, moderate weakness of the thighs with continued spasm of the thigh adductors; abdomen poor. Spinal fluid, 110 cells per cubic millimeter; 100 per cent monocytes; protein 75 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Dec. 13, 1941. Follow-up revealed continued rapid improvement of the abdominal muscles: slight persistent back spasm; extremities normal.

CASE 70 .- J. G., a 2 year old Negro boy, admitted on Nov-2, 1941 with a nine day history of sore throat, fever, stiff neck and inability to walk, was moderately ill, drowsy, and was lying in opisthotonos. There were paralysis of both lower extremities, faint contractions in the right quadriceps gastrocnemius and dorsiflexors of the foot and severe spasm of the neck, back and hamstrings. The Kenny treatment was given from admission. Beginning relaxation of the back occurred on the third day. The patient was able to sit up during the fourth week. Return of function started in the third week. On discharge no return of function to the left dorsiflexors of foot and left gastrocnemius had occurred. There was full range of motion. Spinal fluid, 50 cells per cubic millimeter; 100 per cent monocytes; Pandy test 1 plus. Transferred to Orthopedic Hospital on Dec. 12, 1941. Follow-up in February 1942 revealed no function in the left dorsiflexors of the foot and no atrophy or contracture; other muscles showed return of function and power.

CASE 71.-H. J., a 5 year old Negro boy, admitted on Nov. 12, 1941 with a five day history of fever, vomiting, pain and weakness of the left leg, was moderately ill, with severe spasm of the left hamstrings. The thigh was held in flexion. There were severe spasms of the back of the neck, back and hamstrings, weakness of all groups of the left lower extremity and mild biceps spasm. The Kenny treatment was started on admission. Relaxation of the back and hamstrings was noted in one week. Severe spontaneous spasm of the right quadriceps was noted on the twenty-first day and remained for one week. At discharge

there was minimal weakness of the left lower extremity muscles. Spinal fluid, 35 cells per cubic millimeter; 100 per cent monocytes; protein 46 mg. per hundred cubic centimeters. Transferred to Orthopedic Hospital on Dec. 15, 1941. Follow-up in March 1942 revealed a peculiarity in gait due to incoordination of the hamstrings.

COMMENT

It is difficult to measure differences in amounts of recoveries in the two groups of patients, but all those who have obscrved this group of patients and other groups treated in the orthodox manner are convinced that those who received the Kenny treatment are better off in (a) comfort, (b) freedom from atrophy and deformity, (c) rapidity of recovery and (d) possibly in extent of recovery.

### CONCLUSIONS

- I. At the present time only symptomatic treatment is indicated in poliomyelitis.
- 2. Patients with bulbar paralysis respond well to the treatment described.
- 3. All patients, both paralytic and nonparalytic, should be observed carefully and repeatedly for spasm, and treatment to relieve this symptom should be started immediately on the discovery of the spasm.
- 4. For patients presenting symptoms of spasm, weakness and paralysis in the acute stage of poliomyelitis, the Kenny treatment is the treatment of choice.

### GYNECOMASTIA

A STUDY OF FIVE CASES

JAMES M. SULLIVAN, M.D. Captain, M. C., U. S. Army AND

RALPH A. MUNSLOW, M.D. First Lieutenant, M. C., U. S. Army CAMP BARKELEY, TEXAS

The finding of 5 cases of gynecomastia within one division of soldiers and the fact that in each instance the man complained of inability to wear a pack because of this condition prompted us to restudy this problem.

The articles of Lewis and Geschickter 1 and Wernicke 2 give extensive bibliographies and adequately trace the disease down from its first description by Basedow in 1848 to the present. The cause of gynecomastia is still obscure except in that group of cases in which obviously associated endocrine disturbances are present, such as chorionepithelioma or teratoma of the testicle and tumors of the adrenal cortex. The great majority of cases, however, present no associated endocrine disturbance and in none of our cases could we find any abnormalities that might be causative of gynecomastia. There were no atrophied testicles nor undescended testes. Many authors a mention trauma as a causative agent; although only 1 of our patients gave a definite history of trauma, all the patients stated that the constant wearing of a pack aggravated their condition and caused additional enlargement of the breast.

The pathologic changes that we encountered were identical with those of chronic cystic mastitis in the

From the Surgical Service of Lieutenant Colonel P. J. Sarma, Medical Corps, Station Hospital.

1. Lewis, Dean, and Geschickter, C. F.: Gynecomastia and Virginal Hypertrophy and Fibroadenomas of the Breast, Ann. Surg. 100:779

⁽Oct.) 1934.
2. Wernicke, H. O.: Gynecomastía, Surgery 5: 217 (Feb.) 1939.
3. Cole and Elman. Wernicke.

female, more commonly of the adenosis type. There was epithelial hyperplasia of the ducts with papillary proliferation in some sections and also periductal fibrosis corresponding to the hyperplastic phase of chronic cystic mastitis. In 1 case there were also areas familiar to the involutional stage of chronic cystic mastitis having cyst formation and flattening of the epithelium.

It is to be noted in the accompanying table that all the patients came to the hospital complaining of pain and swelling in the affected breast, being made worse by wearing an army pack, a strap of which puts pressure on the breast area. None of these men had evidence of discharge from the breast, although 1 reported that he had had such an incident five years before. Involvement was unilateral in all cases. In none of our cases was there evidence of endocrine disturbance.

Clinical Data on Five Cases of Gynecomastia

Pa- tient, Age	Duration of Symp- toms	History of Trauma	Uni- lateral or Bi- lateral	Endo- crine Distur- bance	Chief Complaint	Endocrine Therapy
A. 22	8 yrs.	None	Left	None	Pain and swelling in breast	None
B. 22	1 mo,	Bumped breast in baseball game	Right	None	Pain and swelling in breast and axilla	None
C. 34	7 yrs.	None	Left	None	Pain in breast; enlarged	Methyl testosterone 1 mg. daily for 1 month
D. 21	7 yrs.	None	Right	None	Enlarged, tender breast	None
E. 19	5 yrs.	None	Right	None	Enlarged, painful breast; dis- charge 5 yrs. previously	None

The treatment of gynecomastia resolves itself into two divergent schools of thought: those who believe that surgery is the method of choice in most cases * and those who believe that the great majority of cases will respond to the androgens, especially if the condition is bilateral.5 Adair 6 feels that unless the condition responds to testosterone it cannot be called gynecomastia but mastitis, and the best treatment for the latter condition is hot compresses and scientific neglect. One of our patients received injections of testosterone for one month (C. in the table) without any amelioration of his symptoms and he was therefore subjected to surgery and a successful result was obtained.

The surgical procedure that we used in all our cases was a Warren type of incision in the lower lateral side of the breast through which the breast tissue was freed from its attachment to the pectoral fascia and skin and removed by blunt dissection. The nipple was preserved.

Adair. Wernicke. Adair. F. E.: A Consideration of Recent Additions to Clinical 6. Adair, F. E.: A Consideration of Recent Additions to Clinical 6. Adair, F. E.: A Consideration of Recent Additions to Clinical and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions, West. J. Surg., Obst. and Experimental Knowledge of Breast Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditions of Conditi & Gynec. 48: 645 (Nov.) 1940.

thereby not producing a cosmetic deformity. The only precaution to be noted in doing this operation is that the skin can easily be button-holed in dissection of the breast tissue just underneath the nipple.

None of our cases corresponded to the definitions of true gynecomastia as set forth by Horsley? and Adair 6 as being similar pathologically to simple hypertrophy in the female and responding to testosterone therapy in all cases. The changes we found in all cases pathologically corresponded to chronic cystic mastitis, and the therapeutic effect to androgen therapy was nil. This may be explainable on the basis that gynecomastia, as thus defined, can be produced only by some endocrine disturbance and that this disturbance can usually be counteracted by the administration of the androgens. None of our patients showed any endocrine abnormality and we therefore should have expected to find changes only of a chronic inflammatory type. However, the fact that 4 of our patients dated the onset of their disease during the period of adolescence, a fact which all writers have noted,8 will not permit us to dismiss completely some endocrine factor as contributing to the causation of the disease.

In arriving at a rationale for treatment, we cannot agree with Adair 6 that a soldier with this disease who is frequently exposed to the ridicule and censure of his associates and to the psychic trauma of his own flights of fancy, not to mention the obvious pain which he has to endure from the wearing of a pack, should be treated with neglect. He is just as much a casualty, as far as the army is concerned, as if he were suffering from a severe gunshot wound. We believe that endocrine therapy has no place in the treatment of the great majority of these cases. A case of bilateral gynecomastia or one in which there may be some glandular disturbance might warrant a therapeutic test with testosterone. The extended treatment necessary when the androgens are used, the frequency of remissions and the possibility that this expensive substitution therapy may have to be continued indefinitely greatly lessen its value, even if one grants that it may be successful in a sufficient number of cases to justify a trial. Surgical treatment, on the other hand, involves a fairly simple and only mildly incapacitating operation, with complete relief of both objective and subjective symptoms and a loss of time from duty of only ten days to two weeks.

### CONCLUSION

- 1. Gynecomastia in army life is not as infrequent a disease as is generally supposed. Five soldiers were found to have sufficient symptoms to warrant hospitalization in one group of approximately 20,000 troops.
- 2. The etiology in our cases was not on an endocrine basis, nor were there any associated endocrine disturbances present, except that the condition of 4 or our patients developed during adolescence.
- 3. The pathologic changes were similar to those found in chronic cystic mastitis in the female.
- 4. Surgical treatment appears to be the most satisfactory method of handling this condition, both from the point of view of the patient and from that of the service.

^{4,} Cole, W. H., and Elman, Robert: Textbook of General Surgery, ed. 3, New York, D. Appleton-Century Company.

5. Desmarest, E., and Capitain (Mme.): The Treatment of Mastopathies with Acetate of Testosterone (treated 17 cases of cystic mastnis and had good results in 16), Internat. Abstr. Surg. 65: 310, 1937.

Adair. E. E. A Consideration of Particular Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Str

^{7.} Horsley, J. S.: Benign and Malignant Lesions of the Male Breast, Ann. Surg. 109: 912 (June) 1939. 8. Lewis and Geschickter. Horsley. Adair. Wernicke.

### ACUTE INFECTIOUS POLYNEURITIS

A DIAGNOSTIC PROBLEM DURING A POLIO-MYELITIS EPIDEMIC

> ADOLPH G. DE SANCTIS, M.D. AND MARTIN GREEN, M.D. NEW YORK

The difficulties attendant to making a diagnosis of acute infectious polyneuritis during an epidemic of poliomyelitis were emphasized in a recent minor epidemic of poliomyelitis. Acute infectious polyneuritis was first described in 1908 by Laurens.1 The original article of Guillain, Barré and Strohl 2 in 1916 defined the syndrome as one characterized by a slowly ascending paralysis, a normal cell count with increased protein of the cerebrospinal fluid and a favorable prognosis. The condition has most often been called Guillain-Barré's syndrome. Casamajor a emphasized the nominal usage because of the inadequacy of the various descriptive names applied to the condition. Yet, because of our reluctance to use proper names, we shall continue to call it acute infectious polyneuritis.

The necessity for differentiating between acute infectious polyneuritis and acute anterior poliomyelitis is more than an academic consideration. The all important question of prognosis is always uppermost in both the physician's and the parent's mind during an attack of either of these diseases. The prognosis of poliomyelitis in the presence of any degree of paralysis is always in doubt for a prolonged period. It is impossible for the physician to prognosticate as to the amount of residual paralysis that will be present when the final stages of the disease have been reached. On the other hand, as suggested by Guillain and Barré in 1916, a favorable prognosis can be made in infectious polyneuritis, predicting the absence of any residual paralysis after a period of months to one or two years.

A great deal of doubt has been cast on this license to present a favorable prognosis by Forster, Brown and Merritt.4 They present 26 cases of polyneuritis with facial diplegia and show a mortality of 42 per cent. In this group there were 3 cases that might be included in a pediatric series. The range in ages was from 2 to 15 years. Two of these patients died and 1 evidently recovered completely. The highest spinal fluid cell count among the 3 cases was 11 cells per cubic millimeter, certainly within the normal range. The spinal fluid protein determinations are more controversial. In the 2 fatal cases the spinal fluid proteins were 68 mg. per hundred cubic centimeters and 9 mg, per hundred cubic centimeters; the former is only a slight rise (10 to 47 is normal) and the latter is low, if anything. On the other hand, the 2 year old child who recovered showed a definitely increased protein to 363 mg. per hundred cubic centimeters.

Forster is justified in including these 2 fatal cases in his group presenting polyneuritis with facial diplegia.

Viets and Taylor and McDonald use this terminology and describe similar cases, but if we are to accept Guillain's criterion of a "noteworthy hyperalbuminosis of the cerebrospinal fluid in the absence of cytological reaction" as diagnostic of infectious polyneuritis it is difficult to classify the first 2 cases in this discussion, while the third case, in which recovery evidently occurred, is typical. It is interesting to quote Guillain further in an article published in 1936: "Our first communication established in cases of polyradiculoneuritis (infectious polyneuritis) of this type, first, the albuminocytological disassociation (increased cerebrospinal fluid protein with normal cell count) in the fluid, and second, the favorable prognosis. I have insisted repeatedly on the two characteristics of this syndrome.'

Casamajor presented a series of 22 pediatric cases. 3 his own, 19 from the literature, all fairly typical of infectious polyneuritis and showing the typical albuminocytologic disassociation except in 4 cases. In 2 of these there was no report on the spinal fluid, I was reported as negative to the Pandy test for protein and in the last case the spinal fluid was reported entirely negative. In this series all cases except 1 as far as can be determined ended in recovery. The 1 patient who died had a virulent streptococcic infection of the throat. In Casamajor's 3 cases there was complete recovery in all. Casamajor has this to say about the prognosis of infectious polyneuritis: "the prognosis is favorable with recovery over a period of weeks or months, and there are usually no residual signs of paralysis although occasionally muscle atrophy, if present during the disease, persists."

Despite Forster's adverse report, and in view of Casamajor's review of the pediatric literature, we believe that it is reasonably possible to give a good prognosis in these cases. In our own cases, after the first overwhelming acuteness of the illness has subsided somewhat, we have not hesitated to give a good prognosis as to the eventual absence of residual paralysis.

The following 2 cases were seen during a mild epidemic of poliomyelitis. Fifteen cases of poliomyelitis were admitted to our wards over a period of a month and a half.

Case 1.—C. P., a boy aged 3½ years, a private patient of Dr. De Sanctis, admitted June 17, 1941, awakened the day before admission crying because of his inability to get out of bed. When his mother stood him up he collapsed and complained of severe pain in his lower extremities. The child had not been exposed to acute anterior poliomyelitis. He had waded in water up to his knees the day before onset. A physician was called who noticed weakness of all four extremities, more in the lower extremities than in the upper ones and of greater involvement in the left extremity as compared with the right.

On admission the patient was restless and crying, showed no respiratory difficulties but was sweating profusely. The general physical examination was negative except for neurologic manifestations. The pupils were equal and regular and responded to light. Visual fields appeared grossly negative. All deep and superficial reflexes were absent, except for a one plus response in the left biceps, and there were normal cremasterics. No pathologic reflexes were present. The arms and legs were

From the Pediatric Department, New York Post Graduate Medical School and Hospital, Columbia University.

1. Laurens, A.: Paris thesis 210, 1908
2. Guillain, Georges; Barré, J. H., and Strohl, A.: Bull, et mêm. Soc. méd. d. hôp. de Paris 40: 1462 (Oct. 13) 1916.

3. Casamajor, Louis, and Alpert, G. R.: Guillam Barre Syndrome in Children, Am. J. Dis. Child. 61: 99 (Jan.) 1941.

4. Forster, F. M.: Brown, M., and Merritt, H. H.: New England J. Med. 225: 51 (July 10) 1941.

5. Levinson, Abraham, in Brennemann, Joseph: Practice of Pediatric, Hagerstown, Md. W. F. Prior Company, Inc., 1937, vol. 4, chap 2, p. 16

⁶ Viets, H. R., Acute Polyneurius with Facial Diplegis, Arch. Neurol. & Psychiat, 17:794 (June) 1927
7, Taylor, E. W., and McDonald, C. A.: The Syndrome of Polyneurius with Facial Diplegia, Arch. Neurol. & Psychiat. 27:79 (Jan.)

<sup>1932.

8.</sup> Guillain, Georges: Radiculoneuritis with Acellular Hyperalhuminosis of the Cerebrospinal Fluid, Arch Neurol. & Psychiat 36: 975 (Nov.)

absolutely flaccid, the left arm still having some muscle tone. There was some movement of the fingers. Generalized hyperesthesia and muscle pain were present. He was unable to sit up. The red blood cell and white blood cell counts were normal and the sedimentation rate was slightly elevated. The Wassermann reaction of the blood and spinal fluid was negative.

The patient's temperature was never elevated except during an infection of the upper respiratory tract. Two days after admission he showed complete quadriplegia and bilateral weakness of facial muscles. There was no difficulty in swallowing. The pupils were unequal. The hyperesthesia persisted. His voice was nasal and he had difficulty in pronouncing the hard consonants. He remained mentally alert and cooperative. The child's condition continued approximately the same for ten days, at the end of which time some atrophy of the lower extremities was noticed, and there was a definite reaction of degeneration in all the extremities. The patient had also lost sphincter control. One month after admission the facial involvement had disappeared and the patient was able to arch his back, move the left arm slightly and control the right arm. Generalized improvement continued until discharge three months after admission, at which time the patient was able to sit up alone and use his arms to feed himself. He still had weakness of both legs and arms, although he was able to use all four extremities to a limited degree. The voice was definitely improved.

Treatment consisted of administration of vitamin B₁, 100 mg. parenterally every day for eleven days after admission, and of vitamin E, 24 mg. twice a day for two months after admission; splinting of the lower extremities to prevent contraction, and physical therapy starting one month after admission and continuing for one and one-half months. This consisted of tank treatment and under water exercise. The patient took great delight in this form of therapy and showed the most rapid improvement while under this treatment. This unfortunately had to be discontinued because of an intercurrent infection of the upper respiratory tract.

CASE 2 .- M. C., a girl aged 9 years, a private patient of Dr. Wenger, admitted Aug. 18, 1941, had been well until two weeks before admission. According to the mother, she caught a cold following an afternoon swim in a pool. Her temperature rose to 102 F, and she complained of "achy pains" in the muscles of the back and legs. Two days before admission the mother noticed that the child was not walking well. When the patient was taken to a private physician he advised admission to the hospital.

The patient was rather heavy set and appeared to handle herself quite well. General physical examination was practically

TABLE 1 .- Results of Examination of the Spinal Fluid in Case 1

Date	Cells	Protein. Mg. per 100 Cc.	Sugar Mg. per 100 Cc
	- 0	34.9	
3/17	2 .	81.5	61
720	3	129.2	
6/22	3	225.0	
7/ 7	1	177.0	
7/17	ô	214.0	
7/29	2	173.9	**
8/18	ñ	53.5	••
9/11	v		

negative except for the neurologic manifestations. The pharynx was slightly injected. Circumferential measurements of opposite legs, thighs and arms were the same throughout. Musculature on the opposite extremities were comparable. The child had a definite weakness of flexion and extension of the left arm with difficulty in raising the arm above 90 degrees. The grasp of the left hand was weak. There was also weakness of extension and flexion of the left leg, with the additional weakness of plantar flexion and extension on the left. Judging of the gait was not attempted because of the request of the private physician not to have the patient walk. Superficial and deep reflexes were present and normal on admission. She had some

difficulty in sitting up. The red blood cell and white blood cell counts were normal, and the Wassermann reaction of the blood and spinal fluid was negative.

The temperature was normal on admission and throughout the hospital stay. The involved parts became progressively weaker for approximately a week. Five days after admission she began to complain of pain in the muscles of the right calf and weakness of plantar flexion of the right foot. Reflexes at about this time were equal and active, except for an absence

Table 2.—Results of Examination of the Spinal Fluid in Case 2

Date	Cells	Protein, Mg. per 100 Ce
8/18	20	183.6
8/25	9	151.0
9/ 5	7	134.0
9/17	2	102.0
9/29	3	62,0
10/ 9	3	91.5
10/11	3	76.0

of the right ankle jerk. From this point on the child continued to improve. Physical therapy in the form of light massage and under water exercise were started about one month after admission and continued daily for two weeks, with some improvement. A month and a half after admission the child was allowed up. Her gait appeared normal, but after two days she complained of pain in the muscles of the left calf. Because of this and the fact that her spinal fluid protein showed a sudden increase at this time, she was put back to bed. On discharge the right ankle jerk could not be elicited and she still showed weakness of the plantar flexion of the right foot and plantar extension of the left foot.

These 2 cases emphasize the difficulties of differentiating between acute infectious polyneuritis and polinmyelitis, especially when the former is atypical, as in the second case. When the case is seen during a poliomyelitis epidemic the diagnostic difficulties are certainly multiplied many fold.

Clinically, the two diseases appear similar but when examined more minutely do differ. The history of the two conditions is usually that of a slow progression of symptoms and signs, although the onset occasionally may be sudden and overwhelming in acute infectious Patients afflicted with either condition polyneuritis. complain of hyperesthesia, but in poliomyelitis this is really muscle pain present, when the muscles are activated and on deep pressure." With infectious polyneuritis the patient, in addition to having muscle pain. has hyperesthesia on superficial touch.

Both diseases may involve nuchal rigidity and tenderness of the back muscles, although these are rare in cases of infectious polyneuritis. The progress of the paralysis is usually ascending in the two conditions, but they definitely differ in their types of involvement. According to Dechaume,10 the important pathologic condition in infectious polyneuritis occurs in the peripheral nerves. The consequent paralysis is a direct effect of this underlying disorder. The paralysis is usually symmetrical and bilateral and involves the proximal muscles of the extremities more severely than the distal group. This was the situation in the first case, when the patient had an incomplete quadriplegia, partial control of the fingers still being present on admission. Involvement of the cranial nerves is limited mainly to the seventh nerve.

The major underlying disease in poliomyelitis is in the anterior horn cells. The paralysis due to this

^{9.} Toomey, J. A.: Diagnosis of Poliomyelitis, J. A. M. A. 117; 2/, (July 26) 1941.
10. Dechaume, Jean: Rev. neurel. 1:493 (March) 1932.

underlying condition is segmental—that is, if a segment in the cord is involved the muscle groups supplied by these nerves will be paralyzed. The paralysis is not necessarily symmetrical and bilateral but is often unilateral and irregular in distribution. In addition, the cranial nerve involvement is multiple rather than limited to the seventh nerve.

There is an important differential as far as the progress of the two conditions is concerned. exacerbations and new paralyses may develop as late as one to three months after the onset of infectious polyneuritis, it is unusual to have any new involvement after the second week of illness in poliomyelitis.

The all important spinal fluid changes confirm the diagnosis. In cases of infectious polyneuritis there is the already discussed albuminocytologic disassociation. It must be emphasized that the high value of the spinal fluid protein may not occur until two weeks after the onset. In cases of anterior poliomyelitis the spinal fluid picture is entirely different. Here there is a cellular

TABLE 3 .- Differential Diagnosis Between Acute Infectious Polyneuritis and Acute Anterior Poliomyclitis

	Acute Infectious Polyneuritis	Acute Anterior Poliomyelitis
History	Usually slow progressive involvement but may be overwhelming in its suddenness of onset	Slow progressive onset
Pain	Hyperesthesia and muscle pain	Musele pain
Involvement	1 Ascending paralysis 2 Bilateral, symmetrical involvement usually beginning in the proximal groups of the muscles of extremities	Ascending paralysis     Segmental, often unilateral, irregular muscle involvement
	3. Cranial involvement— usually only 7th nerve	<ol> <li>Granial involvement; multiple cranial nerve involvement</li> </ol>
Progress	New paralysis may develop for a prolonged period after onset	No further paralytic in- volvement two weeks after onset
Laboratory	Albumpoes tologic dis- association in spinal fluid	Cellular increase in spinal fluid—early polymorpho- nuclear in character, fol- lowed by lymphocytes
Prognosis	Good	Guarded for a prolonged

increase which very early is polymorphonuclear; a little later lymphocytes predominate. There may be a moderate increase in the value of the spinal fluid protein. This difference in the spinal fluid confirms the diagnosis.

Prognosis is a variable factor in poliomyelitis. the onset one cannot foretell the amount of paralytic involvement, and after cessation of the active state and in the presence of paralysis one cannot forecast the amount of residual paralysis. In infectious polyneuritis the prognosis is usually good, and one can prognosticate as to the absence of all residual paralysis.

#### SUMMARY

It is more than an academic consideration to differentiate acute infectious polyneuritis from acute anterior poliony clitis, especially during a poliony clitis epidemic, since in the former the prognosis is good and in the latter it is guarded for a prolonged period.

One of the 2 cases of infectious polyneuritis presented is typical and the other is atypical.

5 East Eighty-Fourth Street.

### THE ALLEGED EFFICIENCY OF MEDICINAL TREATMENT OF TYPHOID CARRIERS

WINDSOR C. CUTTING, M.D.

G. BERNARD ROBSON, M.D.

WITH THE TECHNICAL ASSISTANCE OF MISS GAIL REEVES SAN FRANCISCO

Because typhoid carriers are denied occupations involving food handling and care of children, are kept under surveillance by health departments and fear the possible infection of others, their successful treatment is greatly to be desired. Successful treatment would also be important in the present war emergency so as to prevent and control spread of the infection in military establishments. To this end, two general procedures and agents have been proposed: (1) the removal of foci of typhoid micro-organisms, usually by cholecystectomy, and (2) the administration of drugs which might be bactericidal. Curative results have been claimed for both these procedures.

For instance, Bigelow and Anderson in 1933 and Coller and Forsbeck² in 1937 are among those who have reported cures by removal of the gallbladder. This is, however, a major undertaking, which fails to cure the patient in a considerable number of instances. For this reason, others have sought a medicinal cure. Onodera and his co-workers 3 in 1931 suggested the use of soluble iodophthalein, and more recently Saphir and Howell and Enright have reported apparent cures from its use. That this drug might be effective in curing persons who harbored the bacteria in their gallbladders appeared rational, owing to its concentration in this organ. In 1941 Levi and Willen e reported the cure of a carrier by the use of sulfaguanidine.

We have tried both the soluble iodophthalein and the sulfonamides, and also a new antiseptic, namely phenothiazine and its derivatives, which are excreted in high concentration into the bile, in 6 typhoid carriers and I dysentery carrier. These compounds and others were also tested in vitro for their effects on typhoid Although all the results were negative, it is believed that the publication of this report is in order so that physicians and public health officials may not relax established controls of typhoid carriers by putting faith in, or wasting time and effort with, proposed medicinal cures.

Supported, in part, by the Rockefeller Fluid Research Fund of the Stanford University School of Medicine.

From the Departments of Pharmacology and of Medicine, Stanford University School of Medicine, and the San Francisco Department of Medicine, and the San Francisco Department of

Public Health

University School of Medicine, and the San Francisco Department of Public Health

Dr. J. C. Geiger, Director of the San Francisco Department of Public Health, directed patients to us and supplied soluble indophthalein. Dr. Floyd DeEds of the U.S. Department of Agriculture at Stanford supplied phenothrazine. Dr. L. P. Gebbardt assisted in the study of the drugs on cultures. Dr. S. L. Christian of the U.S. Marine Hospital gave permission to include case 2. The Lederle Laboratories and L. R. Squibb & Sons supplied sulfadrazine and sulfaguandine respectively.

1. Bigelow, G. H., and Anderson, G. W.: Cure of Typhoid Carriers, J. A. M. A. 101:348 (July 29) 1933.

2. Coller, F. A., and Forsbeck, F. C. Surgical Treatment of Chronic Bihary Typhoid Carriers, Ann. Surg. 105:791 (May) 1937.

3. Onodera, N.; Murakawa, G., and Lim, S. On a New Treatment for Typhoid Carriers, Denisch Arch i him Med. 171:501, 1931.

4. Saphir, William, and Howell, Katharine M. Soluble Ioelophthalein in the Treatment of Carriers of Typhoid Paratyphoid Group, J. A. M. A. 114:1988 (May 18) 1940.

5. Enright, J. R. Apparent Cure of a Typhoid Carrier with Soluble Ioelophthalein, J. A. M. A. 116:220 (Jan 18) 1941.

6. Levi, J. E., and Willen, Abner Tythoid Carrier State Treated with Sulfaguandine, J. A. M. A. 116:2255 (May 17) 1941.

7. DeEds Floyd, and Thomas J. O. Studies on Phenothazine: IV, The Bihary Exerction and Anthelmintic Action of Thionol, J. Parasitel 27:143 (April) 1941.

# EFFECTS ON TYPHOID CULTURES

Phenothiazine, phenothiazone, thionol, tetraiodophthalein, sulfanilamide, sulfathiazole, sulfadiazine and sulfaguanidine were added individually to sterile broth in test tubes to make concentrations of 100 mg. per hundred cubic centimeters (two to six tubes each). The tubes were then inoculated with constant amounts of a suspension of typhoid bacilli in physiologic solution of sodium chloride. Luxurious growth occurred in all the tubes, although this was least in the sulfadiazine tubes. Subcultures from the tubes containing phenothiazine and thionol into fresh tubes containing the same drugs again resulted in plentiful growth.

In an effort to quantitate any possible inhibition of bacillary growth, the drugs (to make 100 mg. per hundred cubic centimeters) were mixed with sterile melted agar and poured into Petri dishes. The surface was then inoculated with a highly diluted saline suspension of typhoid bacilli, but again growth was excellent in all plates, approximating that of the controls.

From this it was clear that none of these compounds, in the high concentrations tried, exhibited a direct inhibitory effect on the typhoid bacillus in vitro. Despite these negative results in vitro, trials were made with patients, because the fate of some of these agents in the body might be different and thereby their inhibitory action enhanced. Furthermore, clinical tests appeared desirable for the sake of completeness of tests and also to check the claims made for iodophthalein and sulfaguanidine.

### CLINICAL TRIALS

Trials with certain of the drugs tested on cultures were made on patients, with uniformly disappointing results. In each case the micro-organisms were isolated from the stools and identified by biochemical and serologic procedures in two independent laboratories.8 Individual cases are reported as follows:

CASE 1.—A Chinese restaurant keeper aged 50, who was not known to have had typhoid and had no complaints referable to the carrier state, was discovered to be a carrier of the bacilli in a routine examination of food handlers. Before treatment he had one positive, three negative and then one positive stool culture, in that order. He was given phenothiazine 1 Gm. daily for one week, after which his stool still contained typhoid bacilli on two examinations. Then he was given sulfaguantdine 9 Gm. daily for one week, after which stool examinations were negative on five occasions, but on the sixth occasion, or eight months after treatment, the stool was again positive.

Case 2.—A German seaman aged 55 had typhoid fever at 52. Stool cultures had been consistently positive since then, and a typhoid osteomyelitis of a rib was present. He was given thionol 1.2 Gm. daily for nine days. Cultures of pus from a rib, and the urine and stools were all positive after this. Soluble iodophthalein was given in doses of 4 Gm. on alternate days for six days, then once weekly for one month. Three consecutive cultures made after this treatment still showed the presence of typhoid bacilli. Sulfaguanidine 12 Gm. daily was then given for one week, but two subsequent stool cultures remained positive.

CASE 3.—An American housewife aged 55 did not know how she became a typhoid carrier but was discovered to be one when her brother, for whom she cooked, contracted the disease. Phenothiazine 1.2 Gm. daily was given for one week but failed to render her stool culture negative. Soluble iodophthalein 4 Gm. every other day for three doses, then once weekly for two weeks, was given. The nausea and diarrhea accompanying the medication were partially controlled with camphorated tincture of opium 8 cc. with each dose. Three further stool cultures were all positive. Sulfaguanidine 12 Gm. daily for eight days was given next but failed to remove the infection.

Finally sulfadiazine 6 Gm. daily for five days and, after an interval of one week, 6 Gm. daily for another week and then 3 Gm. daily for a last week, also failed to affect the presence of typhoid bacilli in stool culture.

Case 4.—An American housewife aged 37 was found to be a typhoid carrier on routine examination, although the stool cultures were irregularly positive. She was given phenothiazine 1.2 Gm. daily for one week without effect on the infection. Following this, soluble iodophthalein 4 Gm. every other day for one week, then once weekly for two weeks, was given. Two weeks later the stool was negative but after another week showed a nearly pure culture of Eberthella typhosa. Sulfaguanidine was then given, 12 Gm. daily for eight days, without affecting the stool culture, and finally sulfadiazine 3 to 6 Gm. daily was administered for two weeks. Two subsequent stool examinations were positive for typhoid bacilli.

Case 5.-A Spanish-American housewife aged 26 had typhoid fever six years before coming under observation as a carrier. Her gallbladder was removed, but her stools continued to be positive for typhoid bacilli. Phenothiazine 1.2 Gm. daily was given for one week. Then, because bacilli were still present, soluble iodophthalein was given, 4 Gm. every other day for one week and then weekly for two weeks. Since this drug also failed to cure her, she was given sulfaguanidine 12 Gm. daily for eight days. Following this, four stool cultures, taken over a period of six weeks, were negative for typhoid bacilli. The next culture, seven weeks after treatment, showed E. typhosa in small numbers, but, unfortunately, the biochemical identification was not confirmed serologically. The next four cultures, made eight, nine, ten and eleven weeks after treatment, were negative. Thus, although the single positive culture after the treatment with sulfaguanidine had not been confirmed, it was necessary to consider her not yet cured.

Case 6.—An elderly American housewife had typhoid fever in May 1941. In August her stools still contained typhoid bacilli, and she was given a course of sulfaguanidine 12 Gm. daily for seven days. Despite this treatment she remained a carrier. Later she was given 12 Gm. of sulfaguanidine and 6 Gm, of sulfadiazine daily for eight days but was not cured.

Case 7.—A white hospital messenger in his fifties was found to be a carrier of Shigella paradysenteriae alkalescens on routine examination. He received in the following order (1) a course of autogenous bacteriophage, (2) phenothiazine 1.2 Gm. daily for ten days, (3) soluble iodophthalein 4 Gm. every other day for one week and then weekly for three weeks, and (4) sulfaguanidine 24 Gm. daily for four days as well as a longer course with a smaller dose of the drug on another occasion. Stool cultures were positive for the bacilli throughout this extensive, and rather intensive, treatment, though quantitatively somewhat less during sulfaguanidine therapy.

To summarize the medication, 6 typhoid carriers and 1 dysentery carrier were treated. Thionol was given to 1, phenothiazine to 5, soluble iodophthalein to 5, sulfaguanidine to 7 and sulfadiazine to 2.

### COMMENT

Although it is disappointing that none of the drugs tried cured the 6 typhoid carriers treated, it is possible that others may do so. The temporary, though imperfect and at best only suggestive, beneficial effect of sulfaguanidine on 2 patients would suggest that this type of compound might be worthy of further chemotherapeutic development. The succinyl sulfathiazole introduced recently by Poth and Knotts as an intestinal antiseptic was not at our disposal.

It is obvious that long-time "cures" are necessary before a patient can be dismissed. Thus patient 1, who appeared cured six months after treatment, was in fact still a carrier, as demonstrated later. When patient 5 had negative cultures for typhoid, it was thought that sulfaguanidine would be useful for patients who

^{8.} Independent checks were made by the laboratories of the San Francisco Department of Public Health and the clinical bacteriologic laboratory of the Stanford Department of Medicine.

^{9.} Poth. E. J., and Knotts, F. L.: Succust Sulfatharde, a Mer Bacteriostatic Agent Locally Active in the Gastrointestinal Tract, Proc. Exper. Biol. & Med. 48: 129, 1941.

remained carriers after cholecystectomy. Her later

relapse did not support this idea.

Several of the patients were more likely to have stools positive for typhoid bacilli when catharsis with magnesium sulfate was used to obtain the specimen. procedure should be followed if ordinary specimens are not consistently positive. It is interesting that only 3 of the 6 typhoid carriers had had demonstrable typhoid in the past and that only 1 case of typhoid fever was known to have been contracted from these carriers. It should also be noted that 1 patient whose gallbladder was removed was not cured of the typhoid

The failure in the dysentery carrier is one of the two failures in the series of Rantz and Kirby.10 This case is included here also because of its resistance to the other agents as well; and the failure is not to be construed as representing the usual effect of sulfaguanidine in dysentery carriers, which is quite satisfactory.

### CONCLUSIONS

1. Six typhoid carriers and 1 dysentery carrier were not cured by treatment with thionol, phenothiazine, soluble iodophthalein, sulfaguanidine or sulfadiazine.

2. The clinical claims of others for iodophthalein and

sulfaguanidine were not confirmed.

- 3. These results agreed with direct negative results with these and some other agents on cultures of typhoid bacilli.
- 4. As yet there is no dependable or efficient curative drug for typhoid carriers, although further chemotherapeutic development might be attempted with the sulfaguanidine type of compound, but it must be definitely more promising.

5. The established methods for the control of typhoid carriers should not be relaxed by physicians and public

health officials in lieu of medicinal treatment.

### Clinical Notes, Suggestions and New Instruments

DERMATITIS MEDICAMENTOSA ATTRIBUTED TO CARTER'S LITTLE LIVER PILLS

JOHN A. CONROY, M.D., NEWTON, MASS.

There are many so-called patent medicines advertised and marketed in the United States. The new Federal Food, Drug and Cosmetic Act requires that the ingredients of these products be listed on the package. Carter's Little Liver Pills is a nationally advertised product. It is stated on the package marketed that the pills contain podophyllum resin and Curação Aloe. The amount of each drug in each pill or in the entire package is not stated.

O'Donovan 1 stated that podophyllum resin, known as podophyllin, is extracted from the root of Podophyllum peltatum L. by percolation with 90 per cent alcohol, precipitation of the resulting tincture in water aciduated with hydrochloric acid, washing and drying. It is a pale yellow to deep orangebrown amorphous powder, soluble in 90 per cent alcohol and in ammonia and partly soluble in ether. The resin yields a percentage of a crystalline substance known as podophyllotoxin C15H14Oe, the remaining amorphous portion being known as podophyllo resin; both substances are purgative.

Podophyllum peltatum L., according to O'Donovan, is a perennial herb commonly found wild in the United States and in some parts of India. It bears a large solitary white flower rising from between two leaves. The yellowish, pulpy fruit is

known variously as May apple, hog apple, raccoon berry, wild lemon and mandrake. Its medicinal use is that of a powerful purgative, and it is sometimes called "vegetable mercury."

The literature reveals no reports of the ingestion of this drug causing dermatitis medicamentosa, but O'Donovan reported several cases and quoted cases reported by Winterburn, Hutchinson and Webster in which dermatitis was caused by contact with podophyllum resin.

Curação aloe, as the name suggests, originates in the Netherland West Indies. Aloe is a genus of plants of the family Liliaceae. There are many species. The American century plant is one of them. There are also a Barbados, a British and another American species. Aloe vera is official in the British pharmacopeia. The drug is the inspissated juice from the leaves of Aloe vera. Aloe chinensis and Aloe perryi were at one time official in the United States Pharmacopeia but are no longer so. As far as can be ascertained, Curação aloc has never been official in either the British or the United States Pharmacopeia.

Aloe contains a crystalline substance, aloin, a resin and a trace of a volatile oil. Aloin is a mixture of anthracene bodies similar to those contained in cascara sagrada, rhubarb and senna. It is less efficient than the crude drug and more irritant. Aloe is a slow acting but efficacious cathartic.

Hamilton 2 reported a case of acute vesicular dermatitis caused by the ingestion of Curação aloe by a woman aged 49. He stated that the patient's eyelids were swollen and the face, arms, legs, groins and the grooves under the breasts were thickly covered by minute vesicles such as are seen in herpes. Over the front of the chest and over the dorsum of the feet these vesicles had become confluent and the surface epithelium lost; acute eczema resulted, and recovery was slow.

In the following case the cutaneous lesions and the progress of the patient are similar to those reported by Hamilton. The case is reported because the product involved is widely distributed and because in possible similar cases the condition may not have been recognized or may have been recognized but not reported.

### REPORT OF CASE

H. C. S., a man aged 50, had on Nov. 20, 1941 a large erythematous vesicular lesion on the medial aspect of the right ankle. The lesion resembled an irregular circle and was about 3.5 cm. in its widest diameter.

The patient was first seen on November 28, when he had a generalized crythematous, small vesicular rash which covered the body in large irregular patches. It was particularly noticeable on the lateral aspects of the thighs, the legs and the upper extremities. The entire back, chest and abdomen and the buttocks were covered with small vesicular herpetic lesions.

The chief complaint was intense itching. The temperature and the pulse rate were normal. The heart and lungs were normal. The blood pressure was 140 systolic and 90 diastolic. Urinalysis and the Kahn test gave negative results.

The onset of the generalized dermatitis was sudden, after the initial lesion on the ankle had been present about one week.

The patient's past history was gone over thoroughly with regard to diet and recent medication. The only thing of interest elicited was that about ten days before the appearance of the initial lesion he had taken approximately eight pills of a preparation called Carter's Little Liver Pills. He had never taken this preparation or any other laxative previously. He was not in the habit of taking any "patent medicines." Before the appearance of the rash he had been in excellent health and had had no need to consult a physician for some time. He was not subject to and never previously had had hay fever. asthma, eczema in any form, allergy or cutaneous disease. He had never been on a restricted diet and could not name any type of food which he could say disagreed with him. He was away from home on a business trip at the time he took the pills mentioned. He was not constipated or sluggish when he took them. He said that he had a feeling that he should take something, for no particular reason; so he took about eight of the pills during about three days. He had not used any new type of soap, cream, tale or bath salts.

^{10.} Rantz, L. A., and Kirby, W. M. M.: The Use of Sulfaguanidine in the Treatment of Dysentery Carriers, J. A. M. A. 118:1268 (April 11) 1942.

1. O'Donovan, W. J.: Brit, J. Dermat, 47:13 (Jan.) 1935.

^{2.} Hamilton, Ian: M. J. Australia 1: 302 (Feb. 27) 1932.

The rash finally extended all over the body and was composed entirely of minute vesicles. The itching was trouble-some. There was edema of the face, of the area about the eyes and of both legs, ankles and feet. The vesicles burst, the skin became moist and crusted and acute eczema resulted.

The disorder progressed slowly, and almost every part of the body was involved. The face, ears, neck, abdomen, chest, back and buttocks slowly cleared, in approximately that order, leaving dry, scaly, slightly pinkish, crescent shaped, macular lesions with a totally clear center. These lesions were more noticeable on the flat surfaces.

The lower dorsal part of the forearms, wrists, hands and fingers after seven weeks presented an acute eczematous condition with much weeping and crusting. The same condition, in addition to considerable edema, was present in both the legs and the ankles. Progress and recovery have been slow.

183 Tremont Street.

# Council on Foods and Nutrition

THE COUNCIL ON FOODS AND NUTRITION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

FRANKLIN C. BING, Secretary.

# FOODEX INELIGIBLE FOR ACCEPTED FOODS

The Scientific Nutrition Corporation of Bloomfield, N. J., has been actively circularizing physicians and others in an attempt to promote the sale of a so-called vitamin and mineral supplement, Foodex. Many physicians have written to the Council office to inquire about the nature of the product and its possible usefulness. One woman wrote from White Plains, N. Y., "Will you kindly advise me as to the value of Foodex as an addition to the daily diet. Is it worth \$3.50 for seventeen days' supply or are there other preparations just as good which are considerably cheaper?"

From the advertising material distributed by the firm it appears that Foodex is available in three dosage forms designated as "Children-Juniors," "Adults" and "Adults-Seniors," the latter being a preparation recommended for use after the age of 45. The "Adults-Senior" product seems to be a little richer in vitamin content than the other dosage forms. Each vitamin cake and each mineral cake together, of this product, are said to provide:

Vitamin A	10,000 Int. Units 600 Int. Units 2,250 micrograms Riboflavin 200 micrograms Pyridoxin 750 Int. Units 1,000 Int. Units 16.66 mgs. Natural Mixed
• • • • • • • • • • • • • • • • • • • •	Tocopherols (60%
	Alpha Tocopherol)
Nicotinamide	10 mgs.
Calcium	1.0 gram
	0.8 gram
Phosphorus	
Iron	
Copper	1.5 mgs.
Manganese	1.0 mg.
Magnesium	1.0 mg.
Magnesium	0.15 mg.
Iodine	1.0 mg.
Zinc	1.0 1.6.

PLUS.—The Entire Natural B Complex Factors and Trace Minerals as Found in 1 gram Yeast Concentrate, 1 gm. Wheat Germ Powder, 400 mgs. Rice Polish Powder, and 13 gms. Dry Defatted Milk Powder.

Of the foregoing list it may be pointed out that the significance of vitamin B₆ or vitamin E in human mutrition has not been established. The need for manganese, magnesium or zinc in amounts beyond those that may be provided in any ordinary human diet has not been shown. If the two "cakes" supply, in the amounts claimed, all of the other substances, namely vitamins A, B₁, G, C and D and the minerals calcium, phosphorus, iron and iodine, they are capable of supplying significant quantities of these dietary essentials. But the Council is aware of no evidence that Foodex will retain all of its vitamin potencies under the usual conditions of storage and use; indeed, there is much evidence that vitamins A and C in products such as

Foodex purports to be are especially unstable and are destroyed to a large extent during storage. Further, it is emphasized by all recognized authorities in nutrition that healthy persons can and should receive their dietary essentials by eating an adequate diet, not by consumption of products such as Foodex.

The promotional armamentarium of the firm includes an elaborate brochure entitled "Man a Nutritive Process" and three "Manuals for the Profession" bearing the imposing titles "'Geriatrics' The New Science of Keeping Fit after 45," "A New Scientific Individualized Reducing Technique" and "A Dietetic Diagnostic Technique." These booklets consist of a mixture of truths and half truths cleverly blended to make it appear to be extraordinarily difficult to obtain the necessary nutrients from ordinary foods, unless the diet is supplemented with Foodex. Scarcely a single trick long known to "patent medicine" promoters has been overlooked in compounding this advertising material.

# CONSIDERATION OF THE BROCHURE "MAN A NUTRITIVE PROCESS"

Examination of the booklet "Man a Nutritive Process" is an interesting adventure for those who like their historical and scientific subjects presented without strict regard to truth. The first three pages of this brochure consist of a brief inaccurate account of the modern knowledge of nutrition. While research workers in numerous laboratories even now strive to determine the biochemical functions of the various vitamins and minerals that are essential in the diet, the anonymous author of this brochure glibly dismisses the interrelationship between vitamins and minerals in the following manner: "One of the principal functions of vitamin D is its influence on calcium and phosphorus absorption. Vitamin A increases the utilization of iron. Manganese is needed to assist the action of vitamin B₁. There also is an interrelationship between manganese and vitamin C. Calcium deficiencies are accompanied by inability to utilize vitamin B1. Vitamin E appears to be correlated with better utilization of iron, etc., etc." Although there may be a vestige of truth in the statement regarding vitamin D, none of the other quoted statements can be substantiated.

Three pages of this brochure are devoted to a comparison between the methods of preparation and preservation of foods used in "Grandfather's Age" and the "Present Age." These statements are intended to show why grandfather got an abundant supply of dietary essentials by eating honest-to-God food and why people today do not get enough of them, unless they eat Foodex. Much unwarranted emphasis is placed on nutritional deficiency in man as a result of depletion of soil, loss of vitamins as a result of storage of foodstuffs, long distance transportation, pasteurization, commercial canning of fruits and vegetables, quick freezing and cooking of food products. Of course, the firm has not fully taken into consideration that the modern processing methods enable us to obtain safe and wholesome foods throughout the year. An amusing comparison concerns meats. In grandfather's day, so it is said, "The local butcher was an important person. He supplied fresh-killed meat which was consumed immediately." In the present age, so the account reads, ". . . our meats are canned, pickled, smoked, sausaged, and corned. They are refrigerated and cold storaged, and as they finally reach our dinner table cooked, their vitamin content is greatly diminished." There is practically no loss of the vitamins in meat as a result of refrigeration and, unless grandpa ate his meat raw, he didn't get any more of the heat labile vitamins from meat than do his grandchildren.

There are a number of pages devoted to abstracts of original papers, no doubt without permission of the authors and presented in such a way as to make it appear impossible to obtain an adequate diet without the use of vitamin-mineral supplements. In addition to quotations from published articles of leaders in nutrition, these quotations being removed from their context and thus being capable of producing an effect entirely different from that intended by the authors, there are included abstracts of articles written by newspaper columnists and other rewrite men. Thus U. S. Senator Fletcher is quoted as having said that 99 per cent of the American people are deficient in essential minerals due to depleted soils and vegetation, and David Dietz is reported to have announced that medical men are just

finding out that among the principal causes of night automobile accidents is vitamin A deficiency. The reports by senators and newspaper men might be impressive to the layman who is in no position to judge the scientific qualifications of the persons making the statements, but authorities on nutrition do not believe that there is sufficient evidence at the present time to warrant either of these statements.

The firm is not at all reticent about discussing the "Physiological Effects Arising from Vitamin and Mineral Deficiencies" and "The Functions of Vitamins and Minerals." In the presentations offered, no attempts have been made to differentiate between the signs of deficiency diseases observed in experimental animals and those observed in man. Descriptions of manganese, magnesium and zinc deficiency are written in such a way that one readily gains the impression that these discussions apply to the human being, for whom no deficiency diseases due to lack of these three elements have been reported.

It must be irritating for informed physicians to read assertions such as the following: "There are two methods of obtaining vitamins and minerals. (1) By changing your eating habits to include daily large amounts of protective foods (milk, dairy products, eggs, vegetables, fruits, whole-wheat and dark grains), -well enough, but look what follows-"all carefully selected and thoroughly checked as to their vitamin content, properly prepared and scientifically cooked under controlled temperatures, as will be indicated below." And "below" the firm has the effrontery to list sixty-four practical suggestions for the preservation of vitamin and mineral values in selecting, preparing and cooking foods. Here is an exemple of one of the sixty-four statements: "Buy fruits and vegetables from markets that receive them fresh daily. Inquire the source of growth, whether storaged, or freshly picked. The destruction of vitamin C starts as soon as vegetables are gathered and gradually continues." After establishing all of these obstacles to its own satisfaction, the firm points out the second way to obtain adequate vitamins and minerals. (This is by the regular consumption of Foodex, of course.)

It is not generally well known how misleading comparative statements regarding foods may be, even when the statements are true. The Council has long held the view that the effect produced by advertising statements is just as important as the actual statements themselves. The Scientific Nutrition Corporation compares the nutritive value of Foodex with a number of natural foods. These foods are listed and illustrated under the caption "Amounts and Kinds of Foods one would have to consume to receive the Vitamins and Minerals contained in a daily supply (one vitamin cake and one mineral cake) of FOODEX (type Adults-Seniors)." It is claimed, for example, that one would have to eat 11/4 pounds of butter, 3 pounds of wheat, 4 pounds of cream cheese, 3½ pounds of apples, 12½ pounds of oysters, I quart of milk, 34 pound of graham crackers, I pound of raisins, six medium bananas, 6 tablespoons of lima beans, 3 cups of cabbage and 30 grs. (grams?) of cod liver oil in order to obtain one's daily supply of vitamin A, B1, B2 (G), C, D, calcium, phosphorus, iron, copper, manganese, magnesium and iodine respectively. Even if Foodex contains as much of these dietary essentials as the quantities of foods with which Foodex is being compared, it obviously would not be necessary to eat these quantities in order to obtain an adequate diet, because each of the foods mentioned contributes also a portion of the other essential nutrients. For example, cod liver oil supplies vitamins A and D, yet the firm compares Foodex only with the iodine content of cod liver oil. The only way to make comparisons properly is to point out dissimilarities as well as resemblances.

### OTHER PROMOTIONAL LITERATURE

The other advertising material used by the firm contains much of the same sort of material found in "Man a Nutritive Process." In the booklet entitled "'Geriatrics' the New Science of Keeping Fit after 45" the headings of much of the material has been reworded so as to give the impression that the quotations cited refer to old age. As an example, here is the heading "Phosphorus Important to People After 45 Because It Aids the Work of Glands." The following statement appears under this heading: "The American diet is more likely to be faulty in calcium than in any other mineral element. Phosphorus also contributes

to bony structure and forms an integral part of every cell multiplication and is found in organic union with proteins, fats and carbohydrates. It aids in the work of various glands." Contrary to implication, these statements are not direct quotations from Dr. McLester's "Nutrition and Diet in Health and Disease" but they are phrases and clauses taken from the original text and compiled into new sentences. It is thus made to appear that phosphorus deficiencies are as prevalent in the American diet as calcium deficiencies, which of course is false, and no assertion to that effect can be found in the original text nor was intended by its author.

As might be expected, the booklet "A New Scientific Individualized Reducing Technique" calls attention to the ease of obtaining an adequate diet when Foodex is consumed. There is a so-called "Vitadiet Plan," which means the use of Foodex in diets for reducing purposes.

There is a copy of a "Dietetic Questionnaire" in the booklet entitled "A Dietetic Diagnostic Technique." This questionnaire apparently is to be used in determining the adequacy of a patient's diet. It would appear, however, that the procedure is included only to stress the ease with which Foodex solves all the problems. Detailed discussion of this advertising is unnecessary.

#### CONCLUSION

Foodex, a preparation of the Scientific Nutrition Corporation, Bloomfield, N. J., is a product which is promoted with exaggerated and misleading claims. The composition and advertising are in conflict with the rules and policies of the Council.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CREMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Acting Secretary.

LIVER AND STOMACH PREPARATIONS (See New and Nonofficial Remedies, 1941, p. 335).

PURIFIED SOLUTION OF LIVER-LAKESIDE.—A sterile aqueous solution of liver preserved with 0.5 per cent of phenol. The daily parenteral administration of 0.1 cc. has been found to produce the standard reticulocyte response defined as 1 U. S. P. unit (injectable) when assayed in cases of pernicious anemia as required by the Council.

Actions and Uses.—Purified solution of liver-Lakeside is used for intramuscular injection in the treatment of pernicious anemia. See the general article Liver and Stomach Preparations, New and Nonofficial Remedies, 1941, page 328.

Dosage.—The amount to be administered will depend on the condition of the patient. When the erythrocyte count is below 1,000,000 per cubic millimeter, injection of 10 U. S. P. units daily or on alternate days is recommended. The physician will be guided by the change in blood picture. Injection of 10 U. S. P. units weekly or every ten days will generally maintain the patient.

THE LAKESIDE LABORATORIES, INC., MILWAUKEE.

Ampule Purified Solution of Liver, 10 U. S. P. Injectable Units per cc.: 1 cc.

Purified Solution of Liver, 10 U. S. P. Injectable Units per cc.: 10 cc. vial.

Purified Solution of Liver, 2 U. S. P. Injectable Units per cc.: 60 cc. vial.

Preparation.—Purified solution of liver-Lakeside, 10 units per cubic centimeter, is prepared as follows: Fresh edible liver is extracted with water at 170 F, for thirty minutes and filtered. The filtrate is concentrated in vacuo and extracted with 70 per cent alcohol; the alcoholic extracts are concentrated in vacuo and precipitated with ammonium sulfate. The precipitate is further purified by alcoholic fractionation, the alcohol removed and the extract made up to volume so that each cubic centimeter contains the extract from 100 Gm. of fresh liver. Five-tenths per cent phenol is used as a preservative. The 2 U. S. P. unit preparation is prepared by diluting the 10 unit product with the appropriate amount of water.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO, ILL.

Cable Address - - - "Medic, Chicago"

Subscription price - - - : Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

### SATURDAY, APRIL 25, 1942

### ENROLMENT FORM AND QUESTION-NAIRE FOR PROCUREMENT AND ASSIGNMENT SERVICE

This week to every physician licensed to practice in the United States there is mailed the long awaited enrolment form and questionnaire of the Procurement and Assignment Service. It comes jointly from the National Roster of Scientific and Specialized Personnel and the Procurement and Assignment Service for Physicians, Dentists and Veterinarians. Each of these agencies is, in turn, related to others and ultimately to the Executive Office of the President. Every physician who receives the medical enrolment form should fill it out as completely as possible and return it immediately in the franked envelop which accompanies it. Opportunity is given to indicate first, second, third and fourth choices of assignment, and it is hoped that the complete functioning of this service will be such that Army, Navy. public health, civilian and industrial needs may be met.

As we go to press the Army requires five thousand physicians, in excess of those already enrolled, to meet existing needs. Therefore, every physician ready now for service who knows that he is not filling an essential position may apply at once to the office of the corps area commander in his area, to the Office of the Air Surgeon, Army Air Force, Washington, D. C., or directly to the Office of the Surgeon General in Washington so that he may receive at once an application blank and proceed to have a physical examination. The Procurement and Assignment Service headquarters in Washington, aided by the consulting office in the American Medical Association and the individual corps areas and state offices, will continue to clear the names of physicians who apply.

This week in Washington a meeting has been called of state representatives of the Procurement and Assignment Service east of the Mississippi River only together with officers of the Army and Navy medical departments, the corps area officers and the board of the

Procurement and Assignment Service to work out plans which will aid recruitment in the individual states. Such plans will, of course, be announced just as soon as they have been suitably drawn and made available. The chairmen for veterinary medicine and dentistry have not been called because there exists no shortage in the supply of these professions for the armed forces. Chairmen of states west of the Mississippi River will meet at a later date at some city west of the Mississippi River.

The physicians of this country have invariably responded to the needs of the armed forces whenever they have been called upon. The Selective Service System makes every man in the United States under 45 years of age available on call. Complete cooperation through use of the enrolment form and through direct application by those ready to volunteer immediately will meet the various demands on medical services without making necessary any call on the Selective Service System for the provision of necessary physicians to the armed forces.

### STATUS OF GASTRODUODENAL ULCER

An editorial in the May 4, 1935 issue of THE JOUR-NAL pointed out some of the inadequacies of the circulatory, the infectious and the mechanical functional theories of the genesis of gastroduodenal ulceration; it concluded that "the accumulated clinical and experimental observations force the clinician and the experimental worker once more to look to the digestive part of the gastric secretion as the most important factor in the genesis of the ulcer." A symposium by physiologists, internists and surgeons in a recent issue of the Archives of Surgery reemphasizes the importance of the acid gastric secretion in the causation of gastroduodenal ulcer. Schiffrin and Ivy 1 state that destruction of gastric tissue results from the proteolytic action of the gastric juices. They do not wish to imply that the excessive secretion of gastric juice or its retention in the stomach is the cause of gastroduodenal ulcer. They believe, however, that the irritating action of acid and pepsin is the prime factor in the genesis of postoperative jejunal ulcer and is important in the development and perforation of duodenal ulcer.

According to Quigley,² hunger contractions through mechanical trauma to the area involved may give rise to distress to the patient with ulcer and may prevent healing. It is desirable to avoid the conditions which tend to exaggerate hunger contraction.

^{1.} Schiffrin, M. J., and Ivy, A. C.: Physiology of Gastric Secretion.
Particularly as Related to the Ulcer Problem, Arch. Surg. 44:322
(March) 1942.
2. Outsider I. P.: Motor Physiology of the Stomach, the Pylorus

^{2.} Quigley, J. P.: Motor Physiology of the Stomach, the Pylorus and the Duodenum, with Special Reference to Gastrolucelensi Ulcer, Arch. Surg. 44:44 (March) 1942.

According to Dragstedt,3 pure gastric juice has the capacity of destroying all living tissue, including the wall of the stomach itself. Animal experiments utilizing a Pavlov or Heidenhain pouch have demonstrated that pure gastric juice has an aggressive action on living tissue as contrasted with the gastric content, which usually consists of a mixture of swallowed food and saliva, gastric juices from the parietal cells of the fundus, mucus and a neutral or faintly alkaline secretion from the pyloric antrum and varying quantities of regurgitated duodenal juices. This gastric content is relatively inert. In all the experiments in which pure gastric juice from an isolated pouch of the stomach is permitted to flow into the lower intestine, the ulcer forms in the intestine rather than in the Since the exposure is similar, one gastric mucosa. must conclude that the gastric mucosa has the greater resistance to digestion. Under normal conditions the gastric wall is not digested away because it is not exposed to pure gastric juice. A continuous gastric secretion occurs which is not dependent on the presence of food. It is slight and its small volume permits its neutralization by the mucus of the pyloric antrum, swallowed saliva and possibly also regurgitated duodenal contents. It is conceivable, Dragstedt points out, that this neutralizing mechanism may fail or prove inadequate and that, as a result, more or less pure gastric juice may accumulate in a stomach empty of food. It seems probable that some abnormality of this type is responsible for most cases of ulcer in man. Anderson and Fogelson reported a relative decrease in the gastric mucin in some patients with duodenal ulcer. Artificially induced continued excessive secretion of gastric juices by implanting histamine pellets in wax produced ulcers in all the common laboratory animals. Dragstedt advances the opinion that in man a similar excessive secretion of gastric juice occurs and an ulcer begins. The hypersecretion in most cases is probably neurogenic and is abnormal in the sense that it operates when the stomach is empty and in the absence of usual stimuli for gastric secretion.

The problem of ulcer in man, according to Palmer. is one of tissue resistance versus acid attack. Vanzant and her collaborators have found that there was an increase of about 12 units of free acidity in the case of duodenal ulcer. In the case of gastric ulcer the mean free acidity was lower than normal by about 6 units. The incidence of achlorhydria was half that observed in normal persons. Peptic ulcer occurs in persons with a low secretory rate as well as in those with a high secretory rate. Chronic ulcer does not occur in persons with a complete and continuous

Nocturnal secretion, however, exceeds achlorhydria. in amount and acidity that observed in normal persons. The presence of acid gastric juice is essential for the production of erosions and ulcers. Pepsin greatly facilitates the progress, but it alone will not destroy the The chief protection against the acid attack on the cells of the mucosa seems to be provided by the thin layer of mucus with which they are covered. Thrombosis, embolism and infection are not essential features of experimental ulcer. Palmer calls attention to the fact that ulcers may, and the majority do, heal in spite of the presence of acid gastric juice. This is evidenced by the spontaneous remissions and by the healed lesions encountered in routine necropsies.

There appears to be considerable agreement between internists and surgeons as to the treatment of duodenal ulceration. The wave of enthusiasm for stomach resections which began a quarter of a century ago and was advocated with particular fervor in Germany has now considerably subsided. Thus, Allen 5 states that duodenal ulcer is primarily a medical problem and that apparently 80 per cent of the patients with this lesion respond to conservative measures. This is essentially what Sippy has taught for a number of years: that the surgical indications for duodenal ulcer were complications, namely acute perforation, massive hemorrhage, cicatricial obstruction and intractability. Allen believes, as do practically all surgeons today, that surgical cure for duodenal ulcer can be brought about only by a subtotal gastric resection. The operative mortality from this procedure has been reduced to a level compatible with the results obtained. Wangensteen 6 emphasizes that the most important criterion of an acceptable operation is that it reduces gastric acidity effectually. He feels that the three-quarter resection meets these demands. The only known manner in which the secretion of acid may be diminished effectually is by sacrificing a liberal portion of the gastric mucosa. Excision of antral mucosa is mandatory to insure achlorhydria. The antral mucosa probably contains a hormonal stimulant of gastric secretion other than histamine.

The case of gastric ulcer differs from that of duodenal ulcer principally because of the ever existing danger of malignant degeneration. Walters? finds that in 10 per cent of the cases gastric ulcer is malignant. He emphasizes that in many cases of chronic gastric ulcer healing is temporary under nonsurgical methods of treatment and recurrence is frequent. The triad which in the past was depended on to insure that the lesion is benign, namely relief of symptoms, disappearance

^{3.} Dragstedt, Lester R.: Pathogenesis of Gastroduodenal Ulcer, Arch. Surg. 44: 438 (March) 1942. 4. Palmer, Walter Lincoln: Peptic Ulcer and Gastric Secretion, Arch. Surg. 44: 452 (March) 1942.

Allen, Arthur W.: Surgical Treatment of Duodenal Ulcer, Arch.
 Surg. 44:501 (March) 1942.
 Wangensteen, Owen H., and Lannin, Bernard: Importance of the Acid Factor, Arch. Surg. 41:489 (March) 1942.
 Walters, Waltman: Gastrie Ulcer, Benign or Mahguant, Arch.
 Surg. 44:520 (March) 1942.

of the niche in the roentgenogram and the disappearance of blood from the stools, cannot be absolutely relied on. Schindler and Arndal stress that it is in the differentiation 8 of benign and malignant ulcer that gastroscopy is most useful and is here superior to roentgenoscopy. They admit, however, that the method had failed to make a correct differential diagnosis in 6 of 113 gastric ulcers. According to Eusterman, gastric carcinoma not only may masquerade successfully as benign ulcer but may react to treatment in similar fashion. Sarah Jordan summarized this problem by stating "Neither the size of the ulcer nor the age of the patient nor the presence of normal acid or hyperchlorhydria should lessen our suspicion of carcinoma, for some of our largest lesions have been benign and some of the smallest malignant. Malignant lesions occur often enough in the young, and benign ulcers often enough in the middle aged and old, and acid is present often enough where the lesion is malignant, so that these three criteria of size of ulcer, age of patient and presence or absence of acid have no actual or practical value in the diagnosis of the individual patient." Proper surgical treatment of gastric ulcer, according to Walters, has been followed by excellent results. In his experience, recurrence has not taken place when one-half the stomach was removed. The operative risk should not exceed 5 per cent and in the hands of skilled surgeons should be less than that.

# AFFILIATED UNITS IN THE ARMY MEDICAL DEPARTMENT

Over two years ago the Surgeon General of the Army was granted authority to form certain general, evacuation and surgical hospitals as sponsored units of medical schools or large civilian hospitals. These were called "affiliated units" and were given numbers which, in many instances, corresponded to numbers of similar organizations sponsored during the first world war.

Specific tables of organization were drawn up for these hospitals, and the sponsoring institution was directed to fill the positions from among individuals connected with the institution. Physicians who were recommended were given "affiliated" commissions in the grades set up in the table for the positions they were to occupy. These officers are for duty only with the organization in which they are commissioned. Many have requested active duty prior to the calling out of the unit, and this has been granted, with the understanding that they will be returned to their units as soon as these units are activated.

Some misunderstanding has occurred among reserve officers as to the reason for commissioning these affiliated officers in higher grades than they themselves hold in the reserve corps. Information from the Office of the Surgeon General indicates that the "affiliated" officer

is commissioned to perform a specific duty in his unit, the grade is fixed, and he will remain with the unit. He can be promoted only in the unit if a vacancy occurs in a higher grade and he can qualify for the position.

# Current Comment

# JOURNAL OF NEUROPATHOLOGY AND EXPERIMENTAL NEUROLOGY

The first number of a new periodical entitled the Journal of Neuropathology and Experimental Neurology has just appeared under the editorship of Dr. George B. Hassin, with whom are associated a number of workers in this special field. The first number contains eleven original contributions in the field concerned and also a condensation of the transactions of the annual meeting of the American Association of Neuropathologists, which was held in Atlantic City during June 1941. A survey of the material here included indicates the great advancement that has taken place in this field in recent years. The appearance of a new, well edited, highly scientific publication of this character at this time is an indication of the progressiveness and vitality of American medical science.

### NEW OBSERVATIONS IN POLIOMYELITIS

Elsewhere in this issue of The Journal appear a number of reports covering recent observations in poliomyelitis. The advances that have been made give assurance of greater preparedness on the part of the medical profession in meeting any outbreaks of the disease that may arise in 1942. The paper by Pohl of Minneapolis describes the first 26 cases treated directly under the advice of Miss Kenny. Emphasis on spasm of the muscle as a condition to be promptly controlled is a prominent feature of this discussion. The author is convinced that the method should be immediately adopted as the fundamental treatment of the disease. Already the results in 28 cases treated subsequently promise even more remarkable recovery. From the Willard Parker Hospital in New York comes a statement by Daly, Greenbaum, Reilly, Weiss and Stimson concerning 71 patients. Their conclusions, while most conservative, again emphasize the importance of spasm in muscle. These observers also stress the increased comfort of patients treated with this technic. They offer furthermore a better understanding of the significance of what Miss Kenny calls "mental alienation." The New York observers confirm the results reported from Minnesota to the effect that patients who receive the Kenny treatment are better off in comfort, freedom from atrophy and deformity, rapidity of recovery and possibly in extent of recovery. Step by step the battle against poliomyelitis is being won. The information that has been gained on the nature of the virus and methods of its transfer has been notably extended during the past year. The contributions of physiologists, neurosurgeons and physical therapists help to overcome the ravages of the disease.

^{8.} Schindler, Rudolf, and Arndal, O.: Gastroscopic Differential Diagnosis of Benign and Malignant Ulcer of the Stomach, Arch. Surg. 44: 473 (March) 1942.

# MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

### **OUININE CONSERVATION ORDER**

The fulfilment of requirements for the defense of the United States has created a shortage in the supply of quinine. In an effort to relieve this situation, the Director of Industry Operations of the War Production Board has issued an order (Conservation Order M-131) which provides that after its effective date, April 4, no person may sell, transfer or deliver, or purchase or accept any transfer or delivery of, any quinine except for use as (1) an antimalarial agent or (2) an ingredient of quinine and urea hydrochloride (U. S. P.) for hypodermic use.

Except in the case of a sale, transfer or delivery to an ultimate consumer, no person may sell, transfer or deliver any quinine except on receipt of a certificate manually signed by the person purchasing or accepting transfer or delivery or a duly authorized official, in substantially the following form:

I hereby certify that the quinine ordered hereby is for use as (1) an antimalarial agent or (2) an ingredient of quinine and urea hydrochloride (U. S. P.) for hypodermic use and will not be sold, transferred or delivered by me for any other purpose. This certification is made in accordance with the terms of General Preference Order No. M-131, with which I am familiar.

Name ..... Ry

Any stock of quinine, whether in the form of solution, pill, tablet or capsule, but not including preparations containing quinine which has been combined or compounded with other medicinal agents, consisting of less than 50 ounces physically located at any one place on the effective date of the order will not be subject to these provisions and restrictions. Such stock may be disposed of by the owner without restriction. The order does not apply to purchases by importers of quinine to be delivered from outside the continental United States. Any subsequent dealing in quinine after its importation, however, will be governed by the order. The order does not apply to the purchase, sale or use of any preparation containing quinine which, on the date of the order, has been combined or compounded with other medicinal agents.

Every person having in his control or possession on the date of the order (1) any stock of quinine consisting of more than 50 ounces, whether in the form of solution, pill, tablet or capsule but not including preparations containing quinine which has been combined or compounded with other medicinal agents, which stock is physically located at any one place, or (2) over 50 pounds of cinchona bark must make a report on form PD-401. All reports required to be filed and all communications concerning the order should be addressed to the War Production Board, Health Supplies Branch, Washington, D. C., Ref. M-131.

A violation of the order will constitute a criminal offense. In addition, any person who wilfully violates any of its provisions or who by any act or omission falsifies records to be kept or information to be furnished may be prohibited from receiving any further deliveries of any material subject to allocation.

### MEDICAL COLLEGE IN CHINA CLOSED BY JAPANESE

Information has been received that the Peiping University College of Medicine, Peking, China, was closed on February 1 by Japanese military authorities. Dr. Henry S. Houghton, who was director of the college, is reported to be held in custody.

#### THE DISPATCH OF EMERGENCY CASUAL-TIES AMONG CIVILIANS

According to Dr. E. L. Keves, chairman, First Aid Posts Committee, St. Louis, the majority of air raid casualties in the London air raids of 1940 and 1941 were sent to only a few hospitals. St. Louis intends to adopt this plan and to send the first of its war casualties to St. Louis City and Homer Phillips hospitals and to defer the use of its other hospitals until after these two city institutions have become filled.

The full implications of such a policy should be considered before it is adopted. DATA

1. Experienced surgeons are agreed that the "golden period" for the operative treatment of fresh wounds is eight hours. All war wounds first treated by operation after eight hours are. with few exceptions, badly infected. Every fresh wound should be treated within eight hours, and any delay is a most serious matter and may entail the loss of many lives that could other-

wise be saved.

2. Stretcher casualties in St. Louis can be moved from a "war incident" to a hospital at an hourly rate up to three strecher casualties per ambulance per mile, as has been found by test mobilizations.

- 3. The Office of Civilian Defense states that major operating room casualties received in a hospital can be cleared through the operating room at the rate of three major operative casualties every two hours per operating room with two operating teams.
- 4. Fractures constitute the bulk of air raid casualties, as may be judged from British figures compiled by Dr. Carl Heifetz. Of 100 air raid casualties, injuries were distributed as follows: Multiple major injuries, 33; lower limbs and hip, 22; upper limb and shoulder, 15; thorax, 12; abdomen, 9; head and neck, 8.

5. An estimate of the number of casualties to be expected may be judged by the following figures: Of every 100 air raid casualties, 30 are killed outright, 42 are stretcher casualties (14 of them sitting) and 28 are walking casualties.

6. Hospitals may well take inventory of their operating room service by estimating how many compound fractures they can treat hourly in the operating room by open reduction and plaster application. A compound fracture is used as a standard merely because it seems to be the most common civilian war injury demanding major surgical attention in the operating room.

### CALCULATIONS

7. Hospitals should calculate (from paragraph 6) the number of major open reductions they can clear through their operating rooms in seven hours. Hospitals should assume (from paragraph 2) that it takes the first aid service one hour on the average to transport a casualty from a "war incident" to the hospital. No hospital should be asked to receive more casualties than it can treat operatively within eight hours of injury (see paragraph 1).

### TENTATIVE CONCLUSIONS

8. Hospitals will give surprisingly low estimates for the number of major fracture casualties their operating services can clear under paragraph 7. Thus, hospital A may say 15 such casualties, hospital B may say 12 and hospital C may say 6, a total of 33 such casualties in seven hours by three large hospitals.

### DISPATCH OF AMBULANCES

9. These data give an accurate way of dispatching ambulances by central control. Assume 33 major compound fractures. Assume an ambulance capacity of 4 stretcher casualties per

vehicle. The 33 casualties require nine ambulances for their transport.

Where should these go? Ambulance 1 may be dispatched to hospital A, ambulance 2 to hospital A, ambulance 3 to hospital A and ambulance 4 (maybe) to hospital A. Ambulances 5, 6 and 7 may be dispatched to hospital B, ambulances 8 and 9 may be dispatched to hospital C.

10. By thus rotating ambulances according to a logical prearranged schedule, overtaxing of the services of any given insti-

tution or group of institutions may be avoided.

11. Further, and most important, such rotation insures all the wounded, as far as is humanly possible, of receiving surgical treatment within eight hours of injury; i. e., in the "golden period."

12. The British, we are informed by Dr. Charles G. Bradford of Dr. Philip D. Wilson's American Hospital in London, now believe that this system of rotation of ambulances is preferable to the one they first tried.

### ARMY WINTER SICK RATE SHOWS DECREASE

The general health of the Army during the past winter was about 50 per cent better than for the same period a year before, the Surgeon General informed the War Department on April 9. Normally higher admission rates during the winter months are expected. The past winter has been an exception, and sick rates were unusually low. Annual hospital admission rates per thousand for the winter period November to February inclusive for the U. S. Army in the United States show a 50 per cent reduction in admissions from all causes, 52 per cent for disease only and 70 per cent for respiratory infections from those of the corresponding period in 1940-1941. The reductions translated into days added for training, savings in drugs and hospital supplies, transportation and incidentals represent a decided addition to the war effort, not to mention the effect on morale and well being, the report said,

The Surgeon General cites the following factors as making

for improvement:

- 1. Health conditions throughout the United States were very good despite the changes due to war, and no extensive epidemics occurred.
- 2. The Army was composed of seasoned troops who had months of rigorous training in camps and maneuvers. New men were absorbed in old units.
- 3. The increase in the Army was limited to the facilities available for housing, supply and hospitalization. In other words, preparations for the care of the soldier were complete before he was called to service.
- 4. Preventive measures were enforced in the Army to assure proper food, pure water, adequate clothing, ventilation, heating and wholesome exercise and amusement.
- 5. Surgeons were interested in guarding the health of the command through sick call, sanitary inspections and in the hospital.

### APPOINTMENTS IN OFFICE CIVILIAN DEFENSE

Dr. Thomas B. McKneely, passed assistant surgeon in the U. S. Public Health Service, has been assigned to the Medical Division, Office of Civilian Defense, Washington, D. C., to assist in the organization of emergency medical services throughout the United States. Dr. McKneely is a native of Louisiana and graduated from Tulane University School of Medicine, -Dr. Burt A. Dyar, since 1939 regional medi-New Orleans.cal officer for the Farm Security Administration, with headquarters in Indianapolis, has been appointed regional medical officer for the Fourth Civilian Defense Region with headquarters in Atlanta. Dr. Dyar is a graduate of the University of Minnesota Medical School and during the first world war attained the rank of lieutenant colonel in the Army Medical Corps. For four years he was executive secretary of the South Dakota State Medical Association.—Dr. Wallace D. Hunt, Regional Medical Officer for the Ninth Civilian Defense Region with headquarters in San Francisco, has been made regional medical officer of the Seventh Region with headquarters at Omaha. Dr. James M. Mackintosh, professor of public health at the

University of Glasgow, has returned to Scotland after spending several months in the United States as a guest of the Rockefeller Foundation, during which time he acted as consultant in medical defense in the Office of Civilian Defense, Washington, D. C., and visited many parts of the United States, lecturing on Emergency Medical Service.

### "WAR SESSIONS" AT MINNEAPOLIS AND MADISON

The final two meetings of the series of twenty-five "war sessions" being conducted by the American College of Surgeons will be held on May 1 in Minneapolis and on May 4 in Madison, Wis. The latter meeting was originally announced for April 29 but was postponed because of a conflicting medical meeting. Headquarters for the Minneapolis meeting will be at the Radisson Hotel and for the Madison meeting at the Loraine Hotel. Physicians from Minnesota, North Dakota and South Dakota will participate in the Minneapolis meeting, and those from Wisconsin in the Madison meeting.

Lieut. Col. B. Noland Carter of the Office of the Surgeon General, United States Army, Washington, D. C., will represent the Army, and Capt. Frederick R. Hook, chief of the surgical service, United States Naval Hospital, Washington, D. C., will represent the Navy at both meetings. The Office of Civilian Defense will be represented at the Minneapolis meeting by Dr. Wallace Hunt, Omaha, medical officer, Seventh Civilian Defense Region, and at the Madison meeting by Dr. John S. Coulter of Chicago, medical officer, Sixth Civilian Defense Region. Dr. Harold S. Diehl, member, directing board. Procurement and Assignment Service, will represent that service at the meeting in Minneapolis and Dr. Charles S. Phifer of Chicago, chairman, Sixth Corps Arca Committee, will represent the Procurement and Assignment Service at the Madison meeting.

### SEATTLE PREPARES

A total of 13,245 volunteers were ready for action with the medical service unit of the Seattle civilian protection division, Dr. M. S. Jared, chief of the unit, announced on March 23. Of these, 11,215 are fully trained and the others are in training. Casualty stations have been organized in schools in each of the air raid zones of Seattle with surgeons, nurses and first aid workers assigned to each zone. Twenty-five ambulances also are assigned to each zone, and first aid workers are being formed into squads to be stationed at drug store first aid posts. A mobile hospital unit is ready for emergencies. Preparations are being made to establish a blood plasma bank under the direction of Dr. Eugene Potter; funds have been appropriated for equipment, including eight freezing units each with a capacity of 500 pints.

### NEW JERSEY ORGANIZES EMERGENCY UNITS

Emergency medical units have been organized in five hundred and fifteen of the five hundred and sixty-eight municipalities in New Jersey, according to Dr. C. H. Schlichter, state chief of Emergency Medical Services, the Newark Evening News reports. The remaining fifty-three places without units are small communities having no physicians. Seventy-four of the eighty-six general hospitals in New Jersey have organized and equipped units for transporting, treating and providing bed space for victims of air raids and other emergencies. The privately formed first aid and rescue squads for public service have been increased from one hundred and twenty to one hundred and forty and in the last seven months the Red Cross has trained thirteen thousand persons in first aid. It was also announced that the State Laundry Owners Association has made three thousand, eight hundred trucks available for use as ambulances.

### DR. ROBERT H. IVY ADDRESSES MEDICAL OFFICERS

The March meeting of the medical department officers residing in Washington and vicinity was addressed on March 16 at the Army Medical Center by Dr. Robert H. Ivy, Philadelphia, on "The Repair of Bony and Contour Deformities of the Face."

# PROTECTION OF NEW YORK WATER SUPPLIES

The state of New York has been divided into twenty-three zones for the operation of the state's mutual aid water plan devised for the purpose of preparing each local water authority to meet fully any possible water supply emergency that may arise. Earl Devendorf, state coordinator of water supply, announced recently. A water works official has been appointed as zone coordinator of each one of the twenty-three zones, and district engineers of the state department of health and the sanitary engineers of Nassau, Suffolk and Westchester counties, which constitute separate zones, have been appointed assistant zone coordinators. The program calls for measures aimed at the protection of water supplies, reinforcement of weaknesses of water systems, bringing public water supplies to the highest possible level of operating efficiency, specific planning for emergency operations, and a mutual aid arrangement whereby any community in distress may be supplied promptly with assistance from adjoining or neighboring communities.

# APPOINTMENTS TO ILLINOIS COUNCIL OF DEFENSE

Six members of the Illinois Department of Public Health have been appointed as a war measure by Governor Green to serve in various capacities with the State Council of Defense. Dr. Roland R. Cross, director of the department, will act as chief of the Emergency Medical Services in Civilian Defense, with Dr. H. L. Pettitt serving as his assistant. Dr. Pettitt. who is assistant director of the state health department, will serve also as emergency medical service coordinator of the Civil Protection Committee. Mr. C. W. Klassen, chief sanitary engineer of the state health department, has been appointed chairman of the sanitation division of the Defense Council's health committee. Miss Maude Carson, chief public health nurse of the state, will act as chairman of the nurses' advisory committee in the civilian defense effort. Dr. C. F. Deatherage, chief of the health department's dental division, will be a member of the dental advisory committee. Dr. Herman M. Soloway, the state's venereal disease control officer, has been made a member of the medical advisory committee, under the chairmanship of Dr. Charles H. Phifer, president of the Illinois Medical Society.

# MEDICAL AND SURGICAL RELIEF COMMITTEE

In keeping with its policy of giving first consideration to our own country's requirements, the Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York City, has offered to hold all donated supplies for final disposition by the Surgeon General, in the meantime continuing the work of collecting, selecting, reconditioning and redistributing the supplies to recognized relief agencies in America and allied nations.

The committee has recently presented seven emergency medical field sets to New Jersey hospitals and three emergency medical field sets to the Third Naval Base at Bayonne, N. J.

The largest amount ever contributed to the committee in a single month was received during February. Of the total of \$44,701.46, there was earmarked \$27,244.55 for the Free Norwegians, the Free French and the Chinese.

### TEMPORARY BRIGADIER GENERALS

Col. James E. Baylis, Medical Corps, U. S. Army, has been promoted to the temporary grade of brigadier general. General Baylis is in command of the medical replacement training center at Camp Joseph T. Robinson, North Little Rock, Ark.—Col. George C. Dunham, Medical Corps, U. S. Army, also has been promoted to the temporary grade of brigadier general and, as previously stated, is to head a mission to Ecuador to undertake malaria control, improvement of sewage disposal and other sanitary measures in cooperation with the Ecuadorean government.—Brig. Gen. Raymond F. Metcalfe, who retired last year, has returned to active duty in the grade of colonel and assigned to surgeon of the Port of Embarkation of San Francisco.

# CLASS OF AVIATION MEDICAL EXAMINERS

The following class of aviation medical examiners was graduated on March 28 at the School of Aviation Medicine, Randolph Field, Texas, following a course of study which began January 5:

Capt. John M. Adams 1st Lieut. Lambert J. Agin 1st Lieut. Osmund H. Akre 1st Lieut, Martin M. Alexander 1st Lieut, Olaf W. Allison Capt. Robert C. Anderson Major Royal S. Anspach Capt. Max B. Backer 1st Lieut. John D. Barker St Lieut. John D. Barker
Capt. Karl L. Bergener
Capt. George C. Bess
Major Marshall M. Best
Ist Lieut. John F. Blalock Jr.
1st Lieut. Richard M. Block
1st Lieut. Herbert N. Boden
1st Lieut. Charles W. Braselton Jr.
1st Lieut. George M. Campbell
1st Lieut. Kenneth D. Campbell Ist Lieut. Kenneth D. Campbell
1st Lieut. William H. Carter
Capt. Frank Clearly
Capt. Felix H. Crago
1st Lieut. William Davis
Capt. Felix H. Davis Capt. James A. Devereux 1st Lieut. John R. Dixon 1st Lieut. Charles H. Dow Major Grant R. Elliott Major Juan Manuel Fiallos, Hon-duranian Army Major Richard S. Fixott Lieut. Sylvester C. Ford Capt. Herman W. Gaddis 1st Lieut. Edward W. Gans 1st Lieut. Frederick R. Guilford 1st Lieut. Dalton C. Hartnett Capt. Arch D. Harvey Capt. Marvin T. Haw Jr. Capt. Robert C. Hecker Capt. Edward A. Heffner Capt. Robert S. Hellmann Capt. Joseph R. Henry 1st Lieut. George J. Hinn Capt. George Hopson Major Ernest E. Howerton Capt. Oscar E. Hubbard Capt. Lawrence B. Hudson 1st Lieut. Nathan W. Hyland Capt. William M. Jackson 1st Lieut. Ralph E. Jordan Capt. Hyman J. Kaplan 1st Lieut. Mavis P. Kelsey 1st Lieut. George M. Knauf Capt. Roland D. Lamb 1st Lieut. Milton Layden 1st Lieut. Fred J. Loughran

1st Lieut, Arthur E. MacNeill 1st Lieut, Stephen L. Magness 1st Lieut, John J. Manning 1st Lieut, Harry E. Mantz 1st Lieut, Samuel H. Marder 1st Lieut, George J. Merriman 1st Lieut, Abe Mickal 1st Lieut. John A. Moran Capt. Paul F. Mueller 1st Lieut. Harold D. Munal Jr. 1st Lieut. Irving Nelson 1st Lieut. Robert H. Newell 1st Lieut. Robert E. Nuernberger Capt. Leroy H. Octjen Capt. Ernest B. Oliver 1st Lieut. Albert Owers Capt. Wilmer H. Paine 1st Lieut. Alvin L. Perry Capt. Robert R. Pinger 1st Lieut. Ross G. Randall Capt. Merrill J. Rech Capt. Francis Z. Reinus Capt. Dale A. Rice Capt. Howard Robinson 1st Lieut. Leo D. Robinson Capt. Joseph L. Roy Capt. Ralph E. Russell 1st Lieut. Louis Ryterhand 1st Lieut. Edward R. Schumacher 1st Lieut. Jesse W. Shaw 1st Lieut. Lewis A. Shepperd 1st Lieut. Thurman Shuller Capt. Robert C. Simpson 1st Lieut. Thomas W. Smith 1st Lieut. William L. Smith Capt. Edward Sosson Lapt. Enward Susson

1st Lieut. Vincent A. Spinelli

1st Lieut. Frederick C. Stanshury

1st Lieut. James A. Sutton

Capt. Charles H. Talbott

Capt. Ralph C. Teall Capt. Ralph C. Teall
1st Lieut. Frank B. Waldorf
1st Lieut. Warren S. Wallace
Capt. William W. Washburn
Capt. James E. Watson Jr.
1st Lieut. Roy C. Weinstein
1st Lieut. Raphael J. Weisberg
Capt. Paul S. Woodall
1st Lieut. John A. Woodworth
1st Lieut. Leslie W. Young
Capt. Herman A. Zampetti
1st Lieut. Carl E. Zeithaml
1st Lieut. Frederick A. Rose 1st Lieut. Frederick A. Rose

# "CABULANCES" AND "SNIFF" SETS FOR WASHINGTON, D. C.

The Army Chemical Warfare Service began the delivery of seventy-five sets of "gas sniffers" on March 28 to the air raid service, Washington, D. C., according to Chement Murphy, the chief air raid warden. These sets, according to the *Times Herald*, are expected to be of help in instructing wardens in the identification of war gases and in gas decontamination.

The District of Columbia's first mass demonstration of the use of taxicabs equipped with stretchers—"cabulances"—took place on March 27. More than a hundred cabs picked up emergency squads of doctors, nurses and nurses' aides at eighteen hospitals, and, after unloading, continued to pick up "bomb victims" and take them to the hospitals. The work of the "cabulances" was supplemented by delivery trucks, also equipped to carry stretchers.

### REPLACEMENT TRAINING CENTER MOVED

The Medical Department Replacement Training Center at Camp Lee, Va., will be moved about June 1 to Camp Pickett. Va., thus freeing the entire reservation at Camp Lee for the use of the Quartermaster Corps. According to the Army and Nacy Journal Brig. Gen. William R. Dear, M. C., will remain in command of the Medical Department Replacement Center when it moves to Camp Pickett, where training facilities will have a greater capacity than at Camp Lee.

# MOBILE RED CROSS UNITS

The War Production Board has granted priority ratings to the American Red Cross for the construction of limited numbers of ambulances, mobile canteens and disaster relief units. In the design of these units, consideration was given to the study made by the Red Cross observers of disaster relief in Great Britain during the heavy German bombings and of civilian mass feeding. Construction of these new Red Cross units, Chairman Norman H. Davis said on March 17, is necessary because of the increased threat of enemy bombing over American soil and because the Red Cross cannot apply to the armed forces for extra equipment during wartime as it could in peacetime. The equipment will comprise two types of 1 ton mobile canteens similar to those used in Great Britain, a 11/2 ton mobile canteen, a custom built body for canteen service suitable for mounting on different types of chassis, an all service mobile disaster relief unit and five army type ambulances. The custom built canteen can feed civilian disaster victims from four windows, whereas the average canteen has but two windows for service.

Many Red Cross chapters, Mr. Davis announced, have received offers from civic groups and individuals to contribute to the purchase of this equipment. Prices for the mobile units range from about \$1,300 to \$3,000.

### NEGRO MEDICAL OFFICERS GRADUATE AT CARLISLE BARRACKS

Twenty-two Negro officers of the medical department were graduated from the Medical Field Service School of the army at Carlisle Barracks, Pa., April 4, after four weeks' training for duty in the medical battalion of a new division. The special course completed was designed to prepare officers for the particular assignments they will have in the medical battalion. The twenty-two officers called to duty from civil life are all first lieutenants in the Army of the United States, eighteen being medical and four dental officers, representing thirteen states and the District of Columbia.

This class brought to a total of fifty-one the number of Negro officers and enlisted men graduated from the Medical Field Service School since a state of emergency was declared by President Roosevelt. The class graduating on April 4 was composed exclusively of Negro officers; ordinarily Negro officers are members of the regular classes.

The roster of the officers in the class which graduated on April 4 is as follows:

### MEDICAL CORPS

Orion T. Ayer, Gainesville, Fla.
James A. Brown, Hopewell, Va.
Henry C. Bryant, North Birmingham, Ala.
Albert C. Burwell, Baltimore.
Jesse S. Chandler, Nashville, Tenn.
Lincoln B. Childs, Gainesville, Fla.
Henry I. Davis, Galveston, Texas.
Albert H. Dyson, Dallas, Texas.
Luther J. Lemon, McDonough, Ga.
Charles L. Lomack, Washington, D. C.
Rudolph H. Porter, Austin, Texas.
William B. Price, Fayetteville, N. C.
Harry L. Riggs, Detroit.
Benjamin W. Satterfield, St. Louis.
Lincoln W. Shumate, Washington, D. C.
William B. Smith, Indianapolis.
Roger G. Thurston, Washington, D. C.
Harold H. Whitted, Washington, D. C.
Oncey M. Whittier, San Antonio, Texas.

DENTAL CORPS

Paul S. Binford, York, Pa. Elbert L. Bookey, New York. Emmett I. Brown, Indianapolis.

### MEDICAL AREAS FOR MUTUAL ASSISTANCE

Following a meeting of state coordinators in Seattle the northwest counties of Washington will form immediately medical areas for mutual assistance in case of war emergency. According to the Bellingham Herald, coordinator W. J. Kaigler said on his return from the meeting that county representatives met on March 18 at Bellingham to check resources and designate medical areas so that one area may draw from another, if necessary.

# MEDICAL DEPARTMENT PROMOTIONS

According to the Army and Navy Journal, the following majors of the medical corps were promoted in March to be lieutenant colonels:

Leon L. Gardner Arthur B. Welsh Martin E. Griffin Alvin L. Gorby Frank B. Wakeman Paul I. Robinson

Silas B. Hays Karl R. Lundbert William S. Stone Thomas Neilson Page Joseph H. McNinch

The following captains of the medical corps were promoted to the grade of major:

Bryan C. T. Fenton Charles H. Moseley James T. McGibony John K. Davis Louis F. Hubener Lee P. Mayes Daniel J. Sheehan

Earl C. Lowry John J. Pelosi Theodore C. Bedwell Jr. Richard Reynolds Robert J. Goldson Aaron L. Kaminsky

### INSTRUCTION IN TROPICAL MEDICINE FOR ARMY OFFICERS

Between Aug. 1, 1941 and Jan. 1, 1942 one hundred and eight officers of the Medical Corps of the Army graduated from the course in tropical medicine at the Army Medical School, Washington, D. C. Twenty-four additional officers graduated late in February following the two months course. Among those who lectured to this class were Rear Admiral E. R. Stitt, U. S. Navy, retired, Drs. Charles Armstrong, R. E. Dyer, Edward Francis, L. L. Williams Jr. and W. G. Workman of the U. S. Public Health Service and Dr. F. C. Bishopp of the U. S. Department of Agriculture. A new class with about the same number of officers in attendance took up the course on March 2.

### LOS ANGELES PREPARES FOR CIVILIAN CASUALTIES

At a joint meeting of the hospital committee of the Los Angeles city and county defense councils on March 27 a plan was announced that provides four thousand five hundred emergency hospital beds in case of need of medical service. At that time a sufficient quantity of blood plasma was needed, but it would be provided within a few weeks, the county health officer is reported to have said. There will be nearly two hundred casualty stations in Los Angeles County, each stocked with medical supplies.

# STATE HOSPITAL AVAILABLE FOR CHRONIC CASES

Mayor F. H. LaGuardia, according to the New York Herald Tribune, has received assurance from Governor Herbert H. Lehman that the facilities of the Willow Brook State Hospital on Staten Island will be available for chronic cases transferred from city hospitals to make room for casualties in the event of enemy action against New York City. When the hospital is completed, it will accommodate between three and four thousand

### CHIEF OF VETERINARY CORPS PRO-MOTED TO BRIGADIER GENERAL

The Senate confirmed on March 7 President Roosevelt's nomination of Col. R. A. Kelser, chief of the U. S. Army Veterinary Corps, for the rank of brigadier general. Dr. Kelser entered the Army as a second lieutenant in the veterinary section of the officers' reserve corps in June 1917 and has advanced through the various grades since that time.

### MILWAUKEE PREPARES FOR EMERGENCIES

The Milwaukee Journal states that 1,056 physicians, nurses, first aid workers and others were being recruited in March to man one hundred and eight first aid posts, casualty stations and base hospitals for war emergencies in Milwaukee County, according to Dr. H. W. Sargeant, chief of the emergency medical service. In addition, four mobile first aid stations had been completed, ambulances had been assigned and control telephone lines installed.

# ORGANIZATION SECTION

# REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion.—Ed.

### REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The following annual report of the Secretary is respectfully submitted:

#### MEMBERSHIP

The official membership list of the American Medical Association as of April 1, 1942 included the names of 120,701 physicians as compared with 118,441 enrolled members on the corresponding date in 1941. The deaths of 1,824 members were recorded in 1941.

The usual tabulation pertaining to the organization of constituent state and territorial medical associations, the total number of counties, the number of component county medical societies, the number of unorganized counties and the number of physicians as shown by the latest available information is included as a part of this report. The accompanying table also reflects the number of members on April 1, 1941 and on April 1, 1942 as reported by each constituent state and territorial medical association and the number of Fellows in each state and territory. It is possible that there may be a slight difference in the number of members as shown by the official records of an individual constituent association and the number presented in the accompanying table, largely for the reason that official reports may have been unavailable at the time the table was prepared.

### FELLOWSHIP

The official Fellowship roster carried 73,747 names on April 1, 1942 as compared with 72,504 on the same date in 1941.

During the year the deaths of 836 Fellows were reported to the Secretary's office.

# Annual Conference of Secretaries of Constituent State Medical Associations

The regular Annual Conference of Secretaries of Constituent State Medical Associations was held in the Assembly Room of the Association's building in Chicago on Nov. 14 and 15, 1941 and was attended by nearly all the state secretaries and editors of state medical journals, as well as by a goodly number of officers and members of official bodies of constituent associations and component societies. One entire section of the program of the conference and a part of another section were devoted to discussions of various phases of the national defense program and of the relations of physicians with the military forces.

### THE AMERICAN MEDICAL ASSOCIATION AND THE WAR

As will be shown in several official reports to be submitted to the House of Delegates, the American Medical Association has attempted to discharge fully its duty to the nation and to medicine during the emergency created by the world war. Every elected officer of the Association, many members of its official bodies and a large part of its administrative personnel have been almost continuously engaged in activities, designed to be helpful to official governmental agencies, pertaining directly to the national defense program A large part of the time of the Secretary and his office staff has been devoted to such duties.

Organization of Constituent State and Territorial Medical Associations, April 1, 1942

	State	Organization of Constituent Associations						
	Number of Countles in State	Number of ( ponent Sock in State	Cou	ot	No. of Physicians in State,	s Me of	aber of mbers State	Number of Fellows
	Num	Num Dong	1941	nized	16th Ed. A.M.A. Directory	1941	ciations 1942	in State
Alabama .	67	67	••		2,075	1,576	1,564	633
Arizona	14	13	1	1	594	374	383	277
Arkansas California	75 58	58 40	11 8	11 8	1,829 11,909	1,060 6,743	1.085 6.987	447 4,548
Colorado .	63	27	ì	1	1,964	1,162	1,179	744
Connecticut .	8	8	.,		2,598	1,753	1,843	1,140
Delaware	3	3	••		339	230	248	149
Dist. Columbia .	•••	•••	::		2,243	917	898	680
Florida Georgia .	67 159	33 95	16 37	17 37	2,276 2,825	1,391 1,957	1,397	771 654
Idaho	44	10	31	31	423	316	1,951 321	171
Illinois	102	92	Ġ	6	12,188	7,991	8,252	4,903
Indiana	92	83	i	1	4,132	3,249	3,262	1,962
Iowa	99	97			3,084	2,464	2,462	1,381
Kansas .	105	71	18	17	2,070	1,564	1,580	964
Kentucky Louisiana	120 64	114 42	3 15	3 15	2,761	1,938	1,887	828 785
Maine	16	15	19	19	2,464 992	1,551 732	1,547 756	388
Maryland	23	23		•••	2,988	1,528	1,596	972
Massachusetts	14	18			7,889	5,367	5 416	3,182
Michigan .	83	54	• •		6,363	4,246	4,371	2,572
Minnesota .	87	34	1	1	3,527	2,794	2,934	1,559
Mississippi Missouri	82 114	21 78	3 8	3 8	1,497	953	986	337
Montana	56	17	21	21	5,297 537	3,264 415	3,279 442	2,055 256
Nebraska	93	50	16	16	1,635	1.156	1,150	6.00
Nevada	17	5	12	12	167	120	125	65
New Hampshire	10	10		••	656	513	539	500
New Jersey New Mexico	21 31	21 14	::	::	5,813	3,928	4,211	2,700
New York	62	61	16 1	17 1	439 27,396	278 17,805	281 18,235	155 11,414
North Carolina .	100	67	$2\overline{4}$	24	2,740	1,850	1,854	895
North Dakota	53	13	11	11	518	ვიც	401	262
Ohio	88	87	1	1	9,318	6,529	6,668	4,412
Oklahoma .	77 36	64 25	7	$\frac{7}{2}$	2,352	1,567	1,440	762
Oregon Pennsylvania	67	60	2 6	6	1,461 13,529	866 9,531	906 9,769	533 6,223
Rhode Island .	5	6	ĭ	ĭ	961	515	563	347
South Carolina	46	37	4	4	1,402	948	897	128
South Dakota Tennessee .	69 95	12 57	1 24	1 24	508 2,908	331	323	187
Texas	254	128	5	24	6,878	1,752 4,526	1,748 4,459	817 2,255
Utah	29	9	4	4	575	476	457	264
Vermont	14	10	3	3	523	281	r03	202
Virginia Washington	100 39	50 24	8 12	8 13	2,889 2,200	1,793 1,517	1,828	1,121
West Virginia .	55	÷ô	5	5	1.834	1,274	$\frac{1.591}{1.291}$	705
Wisconsin .	71	52		••	3,523	2,560	2,500	1,517
Wyoming	24	11	11	11	274	170	192	116
Alaska Hawali Isthmian Canal	·: 5		ï	'i	74 455	203 11	40 320	129 23
Zone Philippine Isi	••	••	••	••	216	121	123	25
(Provinces)	56	26	20	30	2,445	1,251	1,250	43
Puerto Rico	7	7	••	••	473	375	402	76
Foreign	••		••	••	30	••		161
	3,179	2,0.3	355	352	180,075	115 441	120,701	70,20
Commissioned m	cuical	ome.	•	••••	• • • •		••• •••••	73,747
								,

### SUBMISSION OF MEMORIALS AND RESOLUTIONS

Several communications have been received during the past year from members of the House of Delegates and from others suggesting and in some instances demanding that memorials and resolutions to be submitted to the House at an annual session should be sent to the Secretary in time for them to be printed in the Handbook of the House of Delegates. This matter is respectfully submitted to the House of Delegates for such consideration as the House may believe to be indicated.

### PROPOSED AMENDMENT TO THE CONSTITUTION

The following resolution containing a proposed amendment to the Constitution was presented to the House of Delegates at the Cleveland session in 1941, and, in accordance with the provisions of the Constitution, the amendment proposed in the resolution will be before the House of Delegates for action at the Atlantic City Session:

WHEREAS, The Board of Trustees of the American Medical Association was set up at a time when numerically the Association was approximately one-third its present strength; and

WHEREAS, Because of the great variety of conditions existing throughout the country, largely because of geographic and population problems, it seems desirable to provide a greater spread of membership for the Board, even though it is not at all a matter of representation in the sense that the House of Delegates is a representative body; therefore be it

Resolved. That article 6, section 1 of the Constitution of the American Medical Association be amended by substituting the word "eleven" the word "nine" as the last word of the fourth line of that section, so that article 6, section 1, will then read: "Section 1.—The general officers of the Association shall be a President, a President-Elect, a Vice President, a Secretary, a Treasurer, a Speaker and a Vice Speaker of the House of Delegates, and cleven Trustees"; and be it further

Resolved, That article 6, section 3 of the Constitution of the American Medical Association be amended to read as follows:

"Stc. 3 .- Two Trustees shall be elected annually except every fifth year, when three shall be elected, each to serve for five years, or until his successor is elected and installed: Provided, that at the session of the House of Delegates at which this amendment is adopted three Trustees shall be elected to serve five years and one to serve four years. No Trustee shall serve for more than two consecutive terms, but a Trustee elected to serve an unexpired term shall not be regarded as having served a term unless he has served three or more years.

### Suspension of Payment of Dues by Physicians IN MILITARY SERVICE

A large number of communications have been received from physicians who have been called to active duty with the military forces of the nation pertaining to the suspension of payment of Fellowship dues.

It appears that a number of constituent state medical associations and a much larger number of component county medical societies, by the adoption of resolutions or under authorization provided in their by-laws, have suspended the payment of membership dues in whole or in part by members who have been assigned to active duty. As there is no provision whatever in the Constitution and By-Laws of the American Medical Association for the suspension or remittance of Fellowship dues, the Secretary has been compelled, in replying to communications of the nature aforementioned, to state that no such authorization exists.

There seems to be some confusion in the minds of many members with respect to dues paid to the American Medical Association. No member of the American Medical Association as such is required to pay dues to the American Medical Association, nor does any part of membership dues paid to component county medical societies or constituent state or territorial medical associations accrue to the American Medical Association. Only those members who have qualified as Fellows of the American Medical Association are required to pay dues to the Association.

### IN APPRECIATION

This session of the House of Delegates marks the twentieth year in which the present incumbent has served as Secretary of the American Medical Association. As in each previous year, an expression of grateful appreciation is offered to the members of this House, to all the officers of the Association and members of its administrative personnel and to the officers and members of state and territorial medical associations and county medical societies for the kindly consideration, assistance and encouragement extended to the office of the Secretary.

Respectfully submitted.

OLIN WEST, Secretary.

# REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

The Board of Trustees respectfully submits to the House of Delegates the following report pertaining to the general affairs of the Association and to the activities of its various councils, bureaus and departments during the past year. Reports of those councils that are standing committees of the House of Delegates will be separately submitted.

The usual quarterly meetings of the Board of Trustees and the usual monthly meetings of the Executive Committee of the Board were held. At various times during the year representatives of other organizations have conferred with the Board of Trustees or with its Executive Committee. At these conferences matters of important interest to the organizations represented and to the whole cause of American medicine have been considered. Recently an important conference participated in by the Executive Council of the Association of American Medical Colleges and the members of the Council on Medical Education and Hospitals and of the Board of Trustees of the American Medical Association was held in Chicago. As a result of this conference, committees were appointed to represent the Executive Council of the Association of American Medical Colleges and the Council on Medical Education and Hospitals for the purpose of outlining plans for establishing more complete cooperative relations between these two important groups.

It is not possible to include in the annual report of the Board of Trustees reference to all the many and varied problems that come before this body for consideration. Many matters not referred to in this report have received the official attention of the Board and final disposition has been made. Many other matters that have been presented to the Board have not required official action or are still under consideration.

The general officers of the Association, including the President, the President-Elect, the Vice President and the Speaker of the House of Delegates, have attended most of the meetings of the Board of Trustees and have actively participated in the consideration and discussion of matters requiring attention. The Board of Trustees greatly appreciates the active interest and the helpful counsel of these officers.

#### Income and Expenditures

On the recommendation of the auditors of the Association, some changes have been made in accounting methods so that in the future the valuation of property and equipment will be made on the basis of costs. The reserves that were heretofore created will be continued and a depreciation reserve will be reflected in the annual reports submitted by the auditors. The Report of the Auditor and the Report of the Treasurer for the year ended Dec. 31, 1941 are submitted as a part of this report of the Board of Trustees.

Gross income from all sources for the year ended Dec. 31. 1941 amounted to \$1,939,127.39, representing an increase of \$62,773.59 above the gross income for the previous year. Total expenditures amounted to \$1,715,779.75, an increase of \$27,194.25 over the total expenditures for the previous year.

Fellowship dues and subscriptions were received in the amount of \$795,460.48, which is the largest income that has ever been produced from these sources and which exceeds income similarly derived for the year 1940 by the sum of \$19,258.04. Since it is certain that thousands of physicians will be called into service as medical officers of the Army and Navy and of other federal agencies, it is possible that income to be derived from Fellowship dues and subscriptions to the Association's publications may be materially reduced for the current year and for each year during the continuation of the great world war.

Income received from advertising in the Association's publications for which advertising is accepted amounted to \$1,009,853.96, which exceeds the highest income produced from this source heretofore by the sum of \$3,735.82 and is greater by the sum of \$40,272.71 than income received from advertising

in the preceding year.

Interest received on investments in 1941 amounted to \$77,424.09 as compared with \$80,571.91 received from the same source in 1940. The shrinkage in income received from this source has continued over a period of several years because of a general

reduction in interest rates and inability to replace securities that have matured or have been called with other securities of equal yield, and also because of the difficulties involved in making satisfactory investments. It is the policy of the Board of Trustees to invest the funds of the Association available for investment with a view to security rather than with a view to securing greater interest returns. The face value of securities held in the Association's portfolio that are in default or partially in default of interest payments amounts to \$43,400. The accumulated unpaid interest on defaulted and partially defaulted bonds as of Dec. 31, 1941 amounted to \$4,620.

The net income for the year 1941 as shown by the Report of the Auditor was \$223,347.64, of which amount \$77,424.09 was interest on investments.

The amount expended for paper used in the publication of THE JOURNAL in 1941 was \$260,190.99 as compared with an expenditure of \$230,775.35 in the preceding year. The cost of paper advanced steadily through the year covered by this report, but the full import is not reflected in the figures here presented for the year 1941 for the reason that not all of these increases were effective during the entire year. It is possible and perhaps very probable that additionally increased prices may become effective during the current year. An earnest effort is being made to avoid wastage and otherwise to conserve paper supplies.

Total expenditures for wages and salaries applicable to THE JOURNAL account for the year ended Dec. 31, 1941 amounted to \$540,800.30, as compared with expenditures of \$504,564.69 for the preceding year. This increase does not reflect to the fullest extent the higher wage rates which became effective on various dates during the year for different groups of workers, and it is possible that further adjustments will have to be made during the present year. Because of higher costs of living and because of a tremendously increased demand for office personnel, it became necessary to make numerous salary adjustments and to employ additional personnel in some departments, especially in those concerned with the preparation and publication of a new edition of the American Medical Directory and with the work incident to the maintenance of cooperation with the government in the national defense program. For the first time in many years, great difficulty has been experienced in maintaining the necessary working personnel because of the tremendous demands of federal agencies and industries of the nation. These difficulties seem to be increasing rather than diminishing. The cost of practically all materials used by the Association has grown larger, and in some instances increases in costs have been considerable in amount.

Expenses involved in the maintenance of various councils, bureaus and committees of the Association amounted to \$460,513.58 as compared with expenditures of \$482,510.35 in the preceding year. The reduction in such expenditures is in part due to losses in personnel that, in some instances, it has not yet been possible to replace satisfactorily and the consequent suspension of payment of salaries or wages. When existing vacancies can be satisfactorily filled, the decrease in expenditures for the maintenance of these official agencies of the Association will not recur.

Legal and investigation expenses in 1941 amounted to \$119,183.19, as compared with \$112,345.16 in 1940.

A building formerly used for storage purposes, which did not provide adequate space and was not so constructed as to permit the storage of heavy supplies, and an old residence building that has been utilized for some years were razed during the year, and a new storage building has been erected adjoining the main building of the Association. This new building is three stories in height and is so constructed that, if it becomes necessary, additional stories can be added. The cost of this building, which is not yet altogether completed, will be approximately \$215,000.

The buildings and other properties of the Association have been well maintained, and all possible effort has been exerted to effect and maintain economies to a degree that will not interfere with efficient operations.

The number of employees at the time of preparation of this report was six hundred and forty-four, and the Board of Trustees desires to acknowledge with gratitude the faithfulness, efficiency and loyalty of those in its service. A considerable number of employees in the office forces and in the mechanical

departments have been in the service of the Association for from fifteen to thirty-five years and, in a few instances, for even longer periods.

#### Summary

Gross income from all sources for the year 1941 amounted to \$1,939,127.39, representing an increase over the preceding year of \$62,773.59. Income received from Fellowship dues and subscriptions was \$795,460.48, exceeding income from the same source in 1940 by the sum of \$19,258.04. Income from the sale of advertising space was \$1,009,853.96, exceeding that received in the previous year by \$40,272.71. Interest received on investments in 1941 amounted to \$77,424.09 as compared with a similar income in 1940 of \$80,571.91. The face value of defaulted or partially defaulted bonds amounted to \$43,400, and the accumulated unpaid interest on such bonds was \$4,620. The cost of paper used in the publication of The Journal was greater in 1941 than in the preceding year by the sum of \$29,415.64. Expenditures incident to the operation of the various councils, bureaus and departments of the Association were \$460,513.58, approximately \$22,000 less than in the preceding year. Expenditures for legal services and investigations amounted to \$119,183.19 as compared with expenditures for the same purposes in 1940 of \$112,345.16. A new storage building, not yet completed, was erected during the year and will cost the Association approximately \$215,000. Net income for 1941 as shown in the Report of the Auditor was \$223,347.64, of which \$77,424.09 represented interest on investments. At the time of preparation of this report there were six hundred and forty-four persons in the employ of the Association.

#### The Journal of the American Medical Association

The amount of material published in The Journal of the American Medical Association has become so great that the Board of Trustees has determined to issue three volumes annually with an index in April, August and December in order to provide for bound volumes that can be of more easy use in libraries and for other purposes.

During the year modifications have been instituted making possible the use of special announcements on the cover of The Journal concerning important activities related to the war. These bulletins have met with wide approval from the medical profession.

The title of the section of The Journal devoted to Medical Preparedness has been changed to Medicine and the War. Complete cooperation from the Army, the Navy, the United States Public Health Service, the Procurement and Assignment Service, the Office of Civilian Defense, the Office of Defense Health and Welfare Services, the Selective Service System and, indeed, every other governmental agency has enabled The Journal to serve as an important medium with respect to keeping the medical profession aware of its responsibilities and its duties in relation to the war.

Special articles on the use of the United States Pharmacopeia, on glandular physiology and therapy and on many other topics have been received by physicians with approval,

THE JOURNAL continues to serve as a medium for reports of the official bodies of the American Medical Association. Special sections devoted to the work of the Council on Pharmacy and Chemistry, the Council on Physical Therapy, the Council on Foods and Nutrition, the Committee on American Health Resorts, the Committee to Study Air Conditioning, the Council on Industrial Health, the Council on Medical Education and Hospitals and many other bodies have been of immense value to the medical profession.

The war continues to interfere seriously with the receipt of correspondence and medical periodicals from foreign countries, although letters are received regularly from London and occasionally from France and Switzerland. In the meantime, arrangements have been made to cooperate with governmental agencies in promoting interchange of scientific work with the Latin American nations. The Journal now has regular correspondents in Duenos Aires, Argentina; Rio de laneiro and

São Paulo, Brazil; Santiago de Chile; Havana, Cuba, and Mexico City. Through cooperation with the American Library Association, arrangements are being completed whereby interchange of scientific publications even with the warring nations will be facilitated. This will, of course, add to the material utilized in the Current Medical Literature department of The Journal of the American Medical Association.

Table 1.—Approximate Count of Fellows and Subscribers on The Journal Mailing List, by States, Jan. 1, 1942; Also Gain or Loss in Each State

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama	581	301	862	44	<b>5.</b>
Arizona	236	142	378	15	••
Arkansas,	391	174	565	••	2
California	4,180	2,675	6,855	255	••
Connecticut	637	318	955	30	**
Delaware	1,034 130	678	1,712	11	•:
District of Columbia	638	87 597	217 1,235	••	3
Florida	802	500	1,311	105	8
Georgia	725	524	1,249	130	••
Idaho	143	97	240	100	15
Illinois	4,346	2,771	7,117		311
Indiana	1,732	598	2,330		85
lowa	1,188	393	1,581		77
Kansas	820	327	1,147	17	**
Kentucky Louisiana	745	401	1,146	23	* *
Maine	744 361	525 165	1,269 526	163	23
Maryland	945	709	1,654	77	-
Massachusetts	2,848	1,655	4,503	109	••
Michigan	2,333	1,458	3,791	172	
Minnesota	1,338	665	2,003	•••	32
Mississippi	342	225	567	73	••
Missouri	1,811	814	2,623	•••	46
Montana	202	101	303	•••	11
Nebraska	604	235	839	• • •	51
Nevada	63 276	38 117	101 393	25	• •
New Hampshire New Jersey	2,521	1,500	4,024	20	·. 5
New Mexico	14Ĝ	88	234	•••	10
New York	10,105	5,941	16,046	160	••
North Carolina	830	620	1,470	139	• •
North Dakota	201	98	297	4	• •
Obio	3,863	1,374	5,237	76	٠:
Oklahoma	614	292 325	936 779	21	5
Oregon Pennsylvania	454 5,607	2,674	8,281	226	••
Rhode Island	329	216	545	25	••
South Carolina	442	266	708	81	.,
South Dakota	170	86	256	• • • •	33
Tennessee	763	484	1,247	59	• •
Texas	2,001	1,131 98	3,132 313	213	ić
Utah	215 187	72	259	•••	18
Vermont	1,092	567	1,659	187	••
Virginia Washington	872	492	1,364	111	• • • • • • • • • • • • • • • • • • • •
West Virginia.	608	299	907		13
Wisconsin	1,356	590	1,946	***	58
Wyoming U. S. Army	102	60	162	9	••
U. S. Army	• • •	357	357	180	••
U. S. Navy	***	610 99	610 99	300	'n
Ü, S. P. H. S	29	46	75	27	
Alaska	10	729	739	64	• • • • • • • • • • • • • • • • • • • •
CanadaCuba	6	191	197	63	• •
Hawaii	120	127	247	44	
Maxico	8	162	170	22	••
Panama Philippine Islands	36	55	91 261	23 25	••
Philippine Islands	49	212 95	261 168	33	••
Parecta Rico	73	95 4	105		· è
Wirdin Icianas	95	2,743	2,838		€6
Foreign		K,140	487		27
Advertisers and agents Exchanges	**	•••	244		67
Complimentaries	• •	***	120	•••	17
			104,003	3,341	817
Total on mailing list.		**********	103,000	0,0	~~

The Organization Section of THE JOURNAL has been especially devoted to consideration of modifications that have been developed in plans for wider distribution of medical service and of hospitalization. The factual data thus made available are of the utmost importance in guiding the development of such services.

The number of subscribers to THE JOURNAL continues to increase, although it is anticipated that the entrance of considerable numbers of physicians into military service may have a somewhat adverse effect on the circulation, at least temporarily.

Table 1 accompanying this report indicates the number of Fellows and subscribers on the mailing list of The Journal in each state and territory on Jan. 1, 1942 and also shows the number of Fellows and subscribers in other countries, the number of copies of The Journal sent to advertisers and subscription agents and the number sent as exchange or compli-

mentary copies. Table 2 shows the number of physicians in each state as indicated by the Sixteenth Edition of the American Medical Directory, the number of physicians in each state who receive The Journal and the approximate percentage of such physicians.

The net paid weekly average circulation in 1941 was 100,027 as compared with 98,002 in 1940. The delivery of material to some foreign countries has been entirely suspended, resulting in a reduction of the number of foreign subscribers. The total number of copies of The Journal printed in 1941 was 5,350,113.

### Summary

The amount of material published in The Journal has become so great that it has been determined to issue three volumes annually with indexes in April, August and December.

During the year modifications were instituted, so that special announcements concerning important activities connected with the war now appear at intervals on the front cover. The title of the Medical Preparedness Section of The Journal has been changed to Medicine and the War. The close cooperation that has been maintained with practically every governmental agency has

Table 2.—Percentage of Physicians Receiving The Journal*

		······································	
State	Number Receiving Journal	Physicians in A. M. A. Directory	Approximate Percentage Receiving Journal
Alabama	882	2,075	43
Arizona	378	504	64
Arkansas	565	1,829	31
California	6,855	11,909	58
Colorado	955	1,964	49
Connecticut	1,712	2,508	66
Delaware	217	339	Ğ
District of Columbia	1,235	2,243	55
Florida		2,276	5S
	1,311		
Georgia	1,249	2,825	44
Idaho	240	423	67
Illinois	7,117	12,188	58
Indiana	2,330	4,132	56
Iowa	1,581	3,684	51
Kansas	1,147	2,070	55
Kentucky	1,146	2,761	42
Louisiana	1,269	2,464	52
Maine	526	992	53
Maryland	1,654	2,588	ెచ
Massachusetts	4,503	7,889	57
Michigan	3,791	6,362	60
Minnesota	2,003	3,527	57
Mississippi	567	1,497	33
Missouri	2,625	5,237	50
Montana	303	537	56
Nebraska	839	1,635	51
1	101	167	GO .
•	393	656	60
•	4,024	5.813	<b>C</b> 9
New Mexico	234	439	53
New York	16.046	27,396	59
North Carolina	1,470	2,740	54
North Dakota	297	518	57
	5,237	9,318	56
Obio	936	2,352	40
Oklahoma	779	1,461	53
Oregon	8,281	13,529	61
Pennsylvania	545	961	57
	708	1.402	50
•	256	508	50
N .	1,247	2,908	43
Tennessee		6,898	45
Texas	3,132	57.5	54
Utah	313	523	50
Vermont	259	2,889	57
Virginia	1,659	2,200	63
Washington	1,364	1,834	49
West Virginia	907	3,523	វិរ័
Wisconsin	1,946	274	50
Wyoming	162	~/1	

^{*} This table gives the number of physicians (based on the Sixteenth Edition of the Modern Directory) in the United States, the number receiving approximate percentage in each state. Copies alted States Army, Navy and Public Health S...

enabled The Journal, through the publication of material in this section, to serve as an important medium for keeping the medical profession aware of its responsibilities and duties in relation to the war.

Special articles on many topics of immediate and important interest to the medical profession as well as reports prepared by the various official bodies of the Association were published during the year and were received with approval.

The war continues to interfere seriously with the receipt of medical periodicals from foreign countries, but through cooperation with the American Library Association it is probable that interchange of scientific publications will be facilitated, which will add to the material utilized in the Current Medical Literature department of The Journal. Arrangements have been made to cooperate with governmental agencies in promoting the interchange of scientific work with the Latin American countries.

Material published in the Organization Section of The Journal has proved to be of the utmost importance in guiding the development of plans for wider distribution

of medical service and hospitalization.

The net paid weekly average circulation of The Journal in 1941 was 100,027, and the total number of copies printed was 5,350,113.

#### Special Journals

The special journals published by the Association have been continued with the scientific and editorial standards that have made them leaders in their field.

Because of conditions created by the national defense effort it was thought to be the part of wisdom to reduce the size of the special journals to some extent, so that the amount of scientific material which appeared in the pages of these publications was considerably less in the year covered by this report than in the preceding year and probably will continue to be less.

The special symposiums featured in the Archives of Surgery, which have concerned the abdomen and the bones and joints, have attracted much favorable attention. Also of significance have been the collective reviews which constitute one of the most important features of the Archives of Internal Medicine. Repeated requests have been received for reprints of these collective reviews.

The total number of subscribers to the special journals, not including War Medicine, in 1941 was 26,740 as compared with 26,356 in 1940. Two of the periodicals in this group showed a loss in the number of subscribers, these being the Archives of Surgery and the American Journal of Diseases of Children, while each of the other special journals showed an increase.

Two of the special journals, namely the AMERICAN JOURNAL OF DISEASES OF CHILDREN and the ARCHIVES OF OPHTHAL-MOLOGY, showed an excess in income received over the cost of publication in 1941 as they did in 1940, the gain this year being considerably above that of last year. The ARCHIVES OF SURGERY showed a gain in 1941 of \$436.73 as against a loss in the preceding year of approximately \$6,750. The total loss incurred in the publication of the special journals in 1941, including that incident to the publication of the new journal, WAR MEDICINE, was less than the loss sustained in the preceding year by the sum of \$18,482.24.

#### War Medicine

WAR MEDICINE, established in January 1941, has been recognized as significant by the Army and Navy medical departments and by the United States Public Health Service. It has published material dealing with every aspect of the war effort.

The Division of Medical Sciences of the National Research Council indicated recently the desirability of making this a monthly publication. However, complicating factors from the point of view of publication have temporarily delayed such action.

The abstracts in WAR MEDICINE have been an especially useful contribution and are being widely reprinted in British and Canadian publications. Incidentally, all this material is made available, in advance of publication, to the Medical Research Council of Great Britain.

WAR MEDICINE is now widely recognized as a notable contribution of the American Medical Association toward national defense.

The cost of publication of this periodical during its first year was slightly in excess of income received.

#### Hygeia

Constant effort has been made to effect improvements in the quality of material appearing in the columns of Hygela and to publish articles and editorials of timely interest, authentically informative in character. There seems to be no doubt that the reader interest in this magazine has definitely increased. A considerable number of articles originally published in Hygela have been reprinted in the Reader's Digest, a publication with a large circulation, and articles and editorials have been widely quoted in lay publications throughout the country.

The average monthly circulation of HYGEIA was well maintained during the year covered by this report, having been in excess of 100,000 copies. There was an increase in the percentage of subscription renewals as compared with the previous

year.

The fine support of the Woman's Auxiliary has played an important part in introducing Hygela to new readers and in making it available to public and semipublic institutions in various communities. Through the efforts of the auxiliaries, Hygela has been placed in a considerable number of schools and hospitals and in reading rooms of women's clubs and other organizations. Most highly commendable was the effort of the Woman's Auxiliary to the Medical Society of the State of Pennsylvania, which resulted in placing Hygela in every junior and senior high school in that state.

The advertising income of HYGEIA was in some instances unfavorably affected by the prevailing uncertainties in business and industry. Some advertising contracts were canceled and in some instances the amount of space used by advertisers was reduced, but these losses were more than met by the amount of

new advertising secured.

Total income received from all sources for the fiscal year covered by this report was \$266,172.38, while total expenditures for the same period amounted to \$250,434.32. It is gratifying to report that for the first time in several years Hygela credits were greater than debits, in the sum of \$15,738.06.

An actual count made in December 1941 showed that the total number of subscribers at the time the count was made was 114,000, distributed among 15,543 physicians and 98,457 others.

#### Summary

Constant effort was made during the year covered by this report to improve the quality of material appearing in Hygeia, and reader interest definitely increased. Articles and editorials from the columns of this magazine have been widely quoted and reprinted in lay publications. The Woman's Auxiliary to the American Medical Association and its state auxiliaries have continued their fine work in introducing Hygeia to new readers and in placing the magazine in schools, hospitals and reading rooms of many organizations.

The average monthly circulation during 1941 was in excess of 100,000 copies, and there was an increase in the percentage of subscription renewals. The total number of subscribers by actual count in December 1941 was 114,000, distributed among 15,543 physicians and 98,457 others.

While advertising income in some instances was curtailed, the loss thus incurred was more than met by new advertising secured. For the first time in a number of years credits exceeded debits, by the sum of \$15,738.06 for the year 1940.

#### Press Relations

The effectiveness of the press relations activities of the Association, carried on under the supervision of the Editor of The Journal, is testified to in numerous unsolicited comments by disinterested persons.

Under the heading "A. M. A. Press Releases" the world famed daily newspaper Greenwich Time, in an editorial in its issue of April 21, 1941, declared that "Whatever may be the faults of the American Medical Association . . . it has an excellent public relations department. From Chicago come frequent and readable stories of the progress of medicine, which let us know that each succeeding time we get sick we've got a better chance of getting well. . . ."

In a recent letter to the Editor of The Journal the managing editor of the Miami (Fla.) Herald made the following unsolicited statement: "I should like to take this occasion also to tell you how valuable I have found the American Medical Association news releases to be. Such material as we have used always has found a healthy reader response. . . ."

Despite the space limitations in newspapers because of the exigencies of war, the number of stories based on articles appearing in The Journal and in Hygela which were used in American newspapers in 1941 exceeded that of 1940. During the past year more than eighty-one thousand such stories were published in the daily press of the United States in addition to a large number of feature stories and editorials based on information published or furnished by the Association. Of particular importance among the developments of 1941 was the large increase in the number of weekly newspapers using stories based on releases furnished by the Association. Newspaper stories and radio announcements are based on information released weekly through the American Medical Association News, which contains abstracts of articles and announcements appearing in the various periodicals of the Association. In 1941 special editions of the American Medical Association News were inaugurated containing abstracts of articles and announcements appearing in WAR MEDICINE. The same mailing list is used for the regular and the special editions of the AMERICAN MEDICAL Association News and includes three hundred and twenty-five daily newspapers, eighty-two news services, radio stations and miscellaneous publications, forty-three local and state health departments, fifty health and tuberculosis associations, seventyseven county and local medical societies, fifty-three state and territorial medical societies, eighty-four national medical organizations, sixty-one pharmaceutic associations and manufacturing companies, forty-six industrial organizations, nineteen educational institutions and twenty-four science writers. In addition, eighty copies are sent weekly to various constituent state and territorial medical associations for distribution to smaller newspapers in their states. All names on the mailing list have been placed there by request. Particularly noteworthy, in view of the necessity of exercising rigid economy in publication costs as related both to materials and to other expense, is the fact that more than three thousand more newspaper stories based on articles in the American Medical Association News were used in 1941 than in 1940 without any increase in the number of copies of the American Medical Association News that were distributed.

The soundness of the press relations program of the Association was demonstrated again during the Ninety-Second Annual Session in Cleveland. During the five days of the session the three Cleveland daily newspapers devoted a total of 1,737 inches of space to the session as compared with 1,573½ inches of space in the eight major New York City newspapers during the 1940 session.

During 1941 the number of inquiries regarding the various phases of medicine received from newspapers and radio stations was in excess of three thousand one hundred as compared with approximately two thousand in 1940. A considerable portion of this increase is due to inquiries pertaining to various medical phases of the war and is in itself evidence of the wide acceptance of the Association as an authoritative source of information on medical matters.

Other activities of the press relations department have expanded considerably, especially with regard to the furnishing of articles and information for use in special publications such as industrial house organs and medical supplements published by local newspapers under the sponsorship of medical societies. The number of special newspaper supplements aided by the department in 1941 totaled twenty-two as compared to twenty-one in 1940 and fifteen in 1939.

The facilities of this department have been utilized extensively by the American Red Cross and by governmental agencies. The press facilities for such meetings as the Association's Annual Congress on Medical Education and Licensure and the Annual Congress on Industrial Health have been handled by this department, and special assistance has been given to several state and county medical societies in their press relation prostate

grams. The material for the Medical News page appearing in Hygela each month also is furnished by the press relations department.

In addition to the releases contained in the regular and special editions of the AMERICAN MEDICAL ASSOCIATION News, numerous special releases have been issued during the year pertaining to such matters as contaminated drugs and other information which it was deemed necessary to bring to the immediate attention of the public.

#### Library

The Library of the American Medical Association during 1941 continued to be of service in every possible way to the various councils, bureaus and departments in the headquarters offices, to governmental agencies, to state and county medical societies and other professional organizations and to individual physicians from all parts of the country.

In 1941, 2,806 package libraries were distributed in response to requests received from every state and the District of Columbia, the Canal Zone, Hawaii and Mexico. The package library service, principally because of the excessive mailing costs, has not heretofore been made available to physicians residing outside the continental United States and Canada. Two hundred governmental agencies, including army medical posts, marine hospitals and naval training stations, were accommodated through the package library service. Sulfanilamide, industrial diseases, anesthesia, vitamins, tuberculosis, war and national defense problems and aviation medicine were among the subjects most frequently requested.

The Library maintains a periodical lending service, and 12,833 periodicals were lent in 1941 in response to requests received from physicians in all parts of the United States as well as from a number of military and governmental agencies.

Approximately 6,650 reference questions were answered by the Library in 1941 as compared with approximately 5,550 similar questions answered in the preceding year. While most of the reference questions are answered by mail, more than 1,200 visitors called in person for Library service.

Indexes for The Journal of the American Medical Association were prepared in the Library during the year as usual, and in addition much work has been done on the preparation of an index for the new edition of the Standard Classified Nomenclature of Disease.

The Library retains the medical periodicals which it receives for a period of ten years, and each year those discarded are offered to various medical libraries through the Exchange Service of the Medical Library Association. In 1941 periodicals published in 1929 were distributed to fifty-five medical libraries.

Employees of the Association who took advantage of the opportunity to read the books and magazines made available through the Employees' Library for an annual fee of 50 cents numbered 117 in 1941.

### QUARTERLY CUMULATIVE INDEX MEDICUS

The material available for indexing for the QUARTIEUX CUMULATIVE INDEX MEDICUS was somewhat curtailed in 1941. Periodicals were received from abroad quite regularly until June 1941, but since that time no periodicals have been received from Germany, France or Italy. Several hundred issues were borrowed from a Chicago library which had been fortunate enough to receive them. Through the efforts of the Joint Committee on Importations of the American Library Association, many foreign periodicals now held in Bermuda that are addressed to scientific libraries in the United States will soon be released and the issues thus secured will be indexed in the 1942 editions of the QUARTERLY CUMULATIVE INDEX MEDICUS. Since all exchange relations with periodicals published in Germany, France, Italy, Japan, the Philippines, China, Belgium, Rumania, the Netherlands, Finland, Norway and Denmark have been canceled, much foreign literature will be unavailable in 1942. The effect that war conditions have had on the QUAPTLEIN CUMULATIVE INDEX MEDICUS is indicated by the fact that the total number of articles indexed from periodicals published in foreign languages for inclusion in the INDEX was 26,514 in 1949

and 24,312 in 1941. It is anticipated, however, that the INDEX will be much more affected in 1942.

There were seventy-six fewer subscribers to the QUARTERLY CUMULATIVE INDEX MEDICUS in 1941 than in the preceding year, but the loss incurred in its publication was less than in 1940 by the sum of \$5,388.12.

#### Summary

The Library of the American Medical Association has continued to be of service in every possible way to the various councils, bureaus and departments in the head-quarters offices, to governmental agencies, to state and county medical societies and other professional organizations and to individual physicians from all parts of the country.

In 1941, 2,806 package libraries were distributed to all sections of the United States and, for the first time since this service was inaugurated, to the Canal Zone, Hawaii and Mexico. During the year covered by this report, 12,833 periodicals were lent by the Library, approximately 6,650 reference questions were answered, more than 1,200 visitors who called in person for Library service were accommodated, books and magazines were circulated through the Employees' Library to 117 employees of the Association, and indexes for The Journal and the new edition of Standard Classified Nomenclature of Disease were prepared.

War conditions have had an unfavorable effect on the amount of material available for indexing in the Quartely Cumulative Index Medicus. No periodicals have been received in the Library from Germany, France or Italy since June 1941, and all exchange relations with periodicals published in Germany, France, Italy, Japan, the Philippines, China, Belgium, Rumania, the Netherlands, Finland, Norway and Denmark have been canceled so that much foreign literature will be unavailable and the Index more seriously affected in 1942. Although there were fewer subscribers to the Quarterly Cumulative Index Medicus during the past year, the loss incurred in its publication was less in 1941 than in 1940 by the sum of \$5,388.12.

#### American Medical Directory

As of Dec. 31, 1941, 7,279 copies of the Sixteenth Edition of the American Medical Directory had been sold, as compared with the total sale of 7,315 copies of the Fifteenth Edition. As this report is being prepared, it seems probable that the total sales of the Sixteenth Edition will equal and possibly may slightly exceed those of the Fifteenth Edition.

The publication of the American Medical Directory involves a tremendous amount of effort on the part of the Biographic Department. It is essential that the files of the Biographic Department shall be maintained to the highest possible degree of accuracy and that the information contained in these files shall be kept up to date. There can be no let-up in the work incident to the preparation and compilation of material to be published in new issues of the Directory. Preparations for the actual publication of the Seventeenth Edition of the American Medical Directory were begun in July 1941. The general make-up of this new edition will be similar to previous editions except that an effort will be made to list the names of physicians who have been called to active duty with the military forces in a manner to indicate that they are serving as medical officers. It will be necessary to use the home addresses of such physicians, since it will not be possible or desirable to publish their present addresses. The names of commissioned medical officers of the United States Navy, together with biographic data, will appear in alphabetical arrangement under the general address of Washington, D. C., with local addresses "Navy Department." Because of the great difficulties occasioned by the unusual and extremely large number of changes of address of physicians and because of the difficulty of maintaining necessary office personnel, there will be unavoidable delay in the issuance of the new Directory, which probably will appear about the first of July rather than in April or May as in previous years.

Advance subscriptions for the Seventeenth Edition of the American Medical Directory received as of Dec. 31, 1941 numbered 3,840, slightly less than the number of orders received at a corresponding time for the Sixteenth Edition.

#### Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau served thirty-four of the official publications of constituent state medical associations during most of 1941. In September 1941 the Hawaii Territorial Medical Association established the Hawaii Medical Journal, which became the thirty-fifth member of the group of medical journals served by this bureau.

Commissions earned by the Bureau during the year ended Dec. 31, 1941 amounted to \$39,309,41. The expense incident to the operation of the Bureau was \$16,381.12. The cash discounts allowed in excess of cash discounts received amounted to \$1,928.29. Commissions remitted to state journals at the end of the year amounted to \$21,000. Such remittances are made in proportion to the total amount of advertising secured for each of the cooperating journals.

#### Mailing and Order Department

In 1941 the total number of pieces of outgoing mail of first and third classes handled through the mailing department, exclusive of copies of publications sent to subscribers, was 2,582,248. More than 635,000 pieces of first class metered mail went out from the Association's office in 1941, while an undetermined but large number of pieces of first class mail were sent out but not handled through the Mailing Department.

The Order Department in 1941 handled 72,017 orders involving the distribution of 404,042 items. More than 6,500 mail bags were used for the mailing of material which passed through this department.

#### Division of Drugs, Foods and Physical Therapy

On Jan. 14, 1941 the Division of Drugs, Foods and Physical Therapy lost the able leadership of its Director, Dr. Paul Nicholas Leech. Dr. Franklin C. Bing, Secretary of the Council on Foods and Nutrition, served as acting director until July 1, 1941, when Dr. Theodore G. Klumpp assumed the positions left vacant by Dr. Leech's untimely death.

Steps were taken during the year to bring the rules and policies of the three councils which comprise the Division into closer apposition, particularly those relating to testimonial advertising, and it is expected that a uniform statement of attitude will be adopted.

The Council on Pharmacy and Chemistry and the Council on Physical Therapy completed together a study of ion transfer in connection with the consideration of acetyl-beta-methylcholine, and a report was published in The Journal on Aug. 2, 1941.

The Cooperative Committee on Vitamins has been a valuable influence in coordinating and crystallizing the views of all three councils with respect to the many questions on vitamin therapy that have arisen.

Dr. Klumpp resigned as Director of the Division of Drugs, Foods and Physical Therapy and Secretary of the Council on Pharmacy and Chemistry in January 1942, and, pending other arrangements, the Board of Trustees has authorized the suspension of the Division.

#### COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry has continued its work of keeping the medical profession informed of new medicinal products and of promoting in all possible ways the development and progress of rational drug therapy. The Council's work has never been of greater importance than it is at the present time. While the Food, Drug and Cosmetic Act has been a beneficent influence in protecting the public and the medical profession from fraud and deception, it is highly important that there exist in the profession of medicine an organization qualified to express and crystallize the views of medical experts concerning the standards, actions, indications and dangers of drugs. This is a function which governmental agencies cannot adequately perform unassisted. Once the profession has made its own determination of the scientific facts

and has established a consensus, governmental agencies are then in position to invoke the machinery of law to implement the facts. The function of the Council on Pharmacy and Chemistry is primarily fact finding and educational, and it is altogether a wholesome thing that it should be exercised by an independent, professional group separate and apart from the function of law enforcement.

### RELATIONS WITH GOVERNMENT AUTHORITIES

As an authoritative group in drug matters, the contacts of the Council with the Federal Food and Drug Administration, the Federal Trade Commission, the armed forces, the Office of Production Management and the United States Pharmacopeia and National Formulary groups have assumed ever increasing importance. The relations between the Council and these governmental groups have been maintained on the highest plane of service for the common good. In accord with its time honored policy, the Council has given every assistance within its power to the representatives of the government. It is gratifying to note that there were, during the past year, a greatly increased number of calls on the office of the Council from these sources for facts, information and other assistance. The Council takes pride in the contribution to the war effort which it has thus been able to make. It is also a pleasure to acknowledge that the Council has been able to increase its measure of usefulness to the profession and to the public through the facts and information made available to it by governmental agencies, particularly the Federal Food and Drug Administration.

In other ways the work of the Council has received added recognition during the year covered by this report. The state of New Hampshire by legislative enactment recognized New and Nonofficial Remedies as an authoritative compendium of drugs, along with the United States Pharmacopeia and the National Formulary. It is understood that New and Nonofficial Remedies is employed as a guide by the medical departments and purchasing agencies of the armed forces in determining whether or not drugs under consideration have obtained the recognition and acceptance of the medical profession.

#### WORK OF THE COUNCIL

In the field of new drugs the Council again has been concerned with the new developments in therapy with the sulfonamide drugs and the further rapid developments in the vitamin The only members of the sulfonamide group of which brands have not yet been accepted by the Council are sulfaguanidine and sulfadiazine. Consideration of brands of these drugs is proceeding favorably. Much of the Council's time has been taken up with consideration of brands of sulfapyridine, sulfathiazole and sulfanilamide. Through its scrutiny of promotional material and advertising copy, the Council has been highly successful in restricting the claims advanced for these important drugs to those which have been supported by adequate scientific evidence.

In addition to routine acceptance of brands of various already accepted vitamins the Council has accepted, during the year, pyridoxine hydrochloride and menadione. accepted for investigational purposes only, and tests and standards for both have been elaborated. The Council also accepted a vitamin D2 preparation marketed under the proprietary name

"Drisdol."

Other important new products accepted by the Council during the current year are Acetyl-Beta-Methylcholine with the proprietary brand Mecholyl Chloride; Adrenal Cortex Extract; the new anesthetics Cyclopropane and Amylcaine Hydrochloride; Aluminum Hydroxide Gel with the proprietary brand Creamalin, and the various Phenylmercuric Compounds-Merphenyl Nitrate (Basic), Merphenyl Picrate Tincture and Merphenyl Borate Tincture.

The Council has kept pace with the latest developments in serum therapy by accepting Normal Human Serum and Normal Human Plasma with various marketed brands, as well as Antipneumococcic Rabbit Serum Types 3 and 14. The Council is sponsoring investigations in connection with the consideration of other higher type Antipneumococcic Serums.

### NOMENCLATURE

Because of new developments the Council has of recent years been much concerned with matters of nomenclature. During

the past year the Council adopted the nonproprietary term "Menadione" for the substance 2-methyl-1, 4-naphthoquinone, a synthetic vitamin K preparation. This term was subsequently adopted by the Revision Committee of the United States Pharmacopeia. The Council adopted the nonproprietary term "Diethylstilbestrol" for the diethyl derivative 4:4'-dihydroxy alpha: beta-diethylstilbene. This term has also been adopted by the Pharmacopeia Revision Committee. A system of nomenclature for noncrystalline estrogenic preparations was considered, and the term adopted is Solution of Estrogens or Solution of Estrogenic Substances. Forms other than solutions will use an appropriate term, such as Suppositories of Estrogens or Estrogenic Substances, and Tablets of Estrogens. These terms, of course, are all nonproprietary. The designation "Phenytoin Sodium" was adopted as the nonproprietary name for sodium diphenyl hydantoinate. In the sulfonamide field the Council adopted the terms Sulfadiazine and Sulfaguanidine as nonproprietary designations for 2-sulfanilamidopyrimidine and sulfanilylguanidine respectively. At the instigation of the Council the United States Pharmacopeia Revision Committee adopted the terms "Isotonic Solution of Sodium Chloride" and "Isotonic Solution of Three Chlorides" to replace "Physiological Solution of Sodium Chloride" and "Physiological Solution of Triple Chlorides" respectively.

It should be emphasized that the work of the Council in drug nomenclature is exceedingly valuable in the prevention of confusion of terminology. In this field the Council works in close cooperation with the Nomenclature Committee of the American Chemical Society and other organizations having an influence on drug nomenclature. It gives all due consideration to the wishes of the discoverers of products which are to be named, urging, however, that any taint of therapeutic suggestion be avoided.

#### RULE 11 OF THE COUNCIL

Another function of the Council on Pharmacy and Chemistry which has received emphasis in the past few years is the consideration of the status of the firms under the Council's Rule 11, which is designed to prevent acceptance of products marketed by firms whose policies are in conflict with the principles of rational and scientific medicine. Since decisions in this matter must naturally be based on a judgment of the influence on rational therapeutics of a firm's policies and practices, every effort is made to provide objective criteria as a guide. At its meeting in October 1941 the Council considered an outline of objective standards, and it is anticipated that the use of this outline will greatly facilitate and expedite the considerations. If a firm is found satisfactory with regard to Rule 11, the Council proceeds to acceptance or rejection of submitted products, descriptions of which appear in The Journal.

### PUBLICATIONS OF THE COUNCIL

New and Nonofficial Remedies .- Of outstanding importance was the adoption by the Council during 1941 of a proposal for the revision of the format of New and Nonofficial Remedies. This proposal provides for a more logical arrangement of drug groups into revised chapters, and the elimination of redundant printed material. As far as possible these changes will make their first appearance in the 1942 edition of New and Nonofficial Remedies. More than five thousand five hundred copies of New and Nonofficial Remedies were distributed during the year to physicians, manufacturers of pharmaceutic products, pharmacologists, governmental institutions and teachers. A similar amount in paper bound copies was supplied to the classes in pharmacology of recognized medical schools.

Epitome of the U. S. Pharmacopcia and National Formulary. -More than three thousand copies of the latest edition of the Epitome were distributed during 1941. It is popular with both pharmacists and physicians. A new edition will be prepared as soon as the next revisions of the Pharmacopeia and the National Formulary are released.

Useful Drugs .- Over four thousand, seven hundred and fifty copies of Useful Drugs were distributed during 1941 among practitioners and medical students, who are the principal users of this publication. The next revised edition is due in 1942.

American Medical Association Interns' Manual,-During the past year one thousand, one hundred and twenty copies of the

American Medical Association Interns' Manual were disposed of and at present a new edition is being prepared. The distribution of this volume has fallen off to some extent; it is believed that this is due largely to the fact that the text is in need of extensive revision to bring it up to date. The demand for the Manual since its introduction indicates that interns find this to be a very useful handbook.

Glandular Physiology and Therapy.-The new series of articles on the endocrines which has appeared serially in THE JOURNAL over the past year has now been collected in book form. This volume will detail the recent advances made in endocrinology almost up to the time of printing, as the articles themselves were revised before binding. This new edition should be of unusual value to practitioners, since it correlates the basic physiologic principles and the application of these to the practice of medicine. REPORTS OF THE COUNCIL

The Council's reports of all kinds, with few exceptions, are first published in THE JOURNAL and later collected into a volume, The Annual Reprint of the Reports of the Council on Pharmacy and Chemistry. Reports fall roughly into the following groups: reports of omission or rejection, preliminary reports on products not yet ready for acceptance, and status reports on drugs or on various therapeutic or pharmacologic problems.

The Council during the year reconsidered the report on Bacteriophage Therapy by Drs. Krueger and Scribner, which supplements the previous reports of Drs. Eaton and Bayne-Jones, and, as a result of the restudy of the problem, the authors and the Council concluded that the accumulated clinical data are in some instances highly suggestive and warrant the continuation of further studies under thoroughly controlled conditions. Another question reconsidered was the dangers of Cinchophen and Neocinchophen. This restudy confirmed the Council's previously expressed opinion that these drugs should not be employed unless the attending physician feels that the patient's need fully justifies the demonstrated risk in using them.

During the year the Council gave consideration to various human convalescent serums and has accepted Human Convalescent Measles Serum and Human Convalescent Scarlet Fever Serum but feels that the evidence does not yet warrant the acceptance of Human Convalescent Poliomyelitis Serum and Human Convalescent Mumps Serum. A preliminary report on the status of these serums has been issued.

The Council gave extended consideration to the dangers of preparations containing petrolatum and vegetable oils as vehicles intended for introduction into the nasal cavity, a subject on which a report has already been published in THE JOURNAL, and a further report submitted for publication. In harmony with the attitude reflected in the report, the Council voted to eliminate from New and Nonofficial Remedies all nose drops and nasal sprays containing petrolatum. The evidence concerning the danger of nasal preparations containing vegetable oils was not considered sufficiently persuasive at the present time to warrant similar action. The Council similarly gave consideration to the use of halogenated vegetable oils for bronchography and issued a report.

In connection with the published acceptance of Human Blood Plasma and Serum, the Council issued a comprehensive report on the present status of these therapeutic agents, the value of which is being especially demonstrated under war conditions.

The Council sponsored a report prepared by Dr. M. L. Tainter on the Sympathomimetic Amines as Epinephrine Substitutes. This report is a valuable comparative study of these widely used drugs. It calls attention to several unsolved problems of their use and especially to the danger of addiction from amphetamine sulfate.

In the field of endocrinology the Council issued a preliminary report on Progesterone and the Status of Corpus Luteum Hormones Therapy. The Council decided that the time had not yet come to accept any preparation of progesterone and in another report definitely rejected a so-called "oral progesterone," pregneninolone.

MEMBERS OF THE COUNCIL

During the year Dr. James P. Leake was elected to membership on the Council, succeeding the late Dr. C. W. Edmunds. Drs. Rose, Sollmann and Sevringhaus, whose terms of membership expired during the year, were elected to succeed themselves.

Following the resignation of Dr. Theodore G. Klumpp as Secretary of the Council on Pharmacy and Chemistry in January 1942, Dr. Austin E. Smith, for some years a member of the Council's staff, was made Acting Secretary of the Council.

Aside from the exigencies created by the fact that our country is at war, the Council on Pharmacy and Chemistry faces a more than usually arduous year. Too much credit cannot be given to the efforts of the members of the Council whose only remuneration for the sometimes onerous burden of work is the realization of service to the cause of rational medicine, which is epitomized in the Council's motto "Non Sibi Sed Medicinae." In this connection credit should be given to numerous consultants who have generously given their service to the Council in the consideration of questions relevant to their special fields of knowledge. A list of these consultants is published in each annual issue of New and Nonofficial Remedies.

#### Summary

The Council on Pharmacy and Chemistry has continued fruitful and satisfactory relations with various governmental agencies.

In the field of new drugs the Council has again been concerned with the new developments in therapy with the sulfonamide drugs and the further rapid developments in the vitamin field. More than usual attention has been given to matters of nomenclature, mainly because of the rapid development of new drugs. The main effort of the Council in this regard is to avoid the confusion caused by multiple names for the same drug and the evils of therapeutically suggestive names.

Publications of the Council have continued to enjoy satisfactory distribution. A new edition of the book "Glandular Physiology and Therapy" is in the process of preparation, and a radical revision of the format of New and Nonofficial Remedies is being made for the 1942 edition.

The Council has issued many important reports during the year, among the most important of which are those on bacteriophage therapy, the dangers of Cinchophen and Neocinchophen, various human convalescent serums, preparations containing petrolatum and vegetable oils for nasal inhalations and halogenated vegetable oils for bronchography, human blood plasma and serum, the sympathomimetic amines as epinephrine substitutes and the status of corpus luteum hormones therapy.

During the year the Council lost its Secretary, the late Dr. Paul Nicholas Leech, and a member of long standing, the late-Dr. C. W. Edmunds.

#### COUNCIL ON PHYSICAL THERAPY

The Council on Physical Therapy has continued its duties of investigating and reporting on new apparatus offered to the profession for diagnostic and therapeutic purposes, publishing informative articles on reliable and effective physical therapeutic measures and advising research workers in the field. Emphasis has recently been placed on the publication of material considered valuable to those members of the profession engaged in the nation's war effort.

#### PUBLICATIONS OF THE COUNCIL

The Handbook on Amputations, recently published, contains practical information on the general principles governing all kinds of amputation, sites of election, physical therapy in amputations and mechanics of artificial limbs. The volume has already found favor with the profession. Over a period of three years the Consultants on Artificial Limbs have devoted considerable time and effort to reviewing the literature, gathering facts and opinions and assembling the material in short, concise articles which were first published in The Journal. Since this group of consultants was composed of leading orthopedic surgeons and of representatives of the Association of Limb Manufacturers of America, the Handbook is a reliable guide for physicians desiring the latest information on technic of amputation and on the most satisfactory prosthesis. The Council is indebted to the consultants for their untiring efforts.

A Manual on Physical Therapy, the contents of which have been published in WAR MEDICINE and have been collected in a small handbook, is ready for distribution. It is a short, concise summary of the pertinent facts pertaining to the therapeutic value of physical agents. The Council believes that it will be useful to medical officers in the Army and Navy and to physicians engaged in civilian defense work as well as to the general practitioner. The Subcommittee on Physical Therapy of the National Research Council cooperated in the preparation of this volume.

Apparatus Accepted, a Council publication containing a list of accepted products, has been revised, and copies are available on request to the secretary of the Council.

Articles and reports published under the auspices of the Council included "X-Ray Protection" by Lauriston S. Taylor, Ph.D., "Radiotherapy for Inflammatory Conditions" by A. U. Desjardins, M.D., "Corsets and Backache" by Frank R. Ober, M.D., "The Management of the Cerebral Palsies" by Winthrop M. Phelps, M.D., "Explosion Hazard in Anesthesia," "Interrelationships of the Artificial Limb Manufacturer, the Surgeon and the Patient," "Physical Therapy in Amputations," "Amputation in Congenital and Chronic Disabilities," "Reamputations and Secondary Amputations," "Ion Transfer," "Amputations in Diabetes Mellitus and Peripheral Vascular Disease," "Rehabilitation" and "The Manufacture of Artificial Limbs.

#### RESEARCH

Grants were awarded through the Council's Committee on Research in aid of research on the following subjects:

A functional examination of respiration in obstructive diseases,

A continuous record of the total daily amount of ultraviolet radiation A continuous record of the total daily amount of ultraviolet radiation of wavelengths 3,200 angstroms and shorter from the sun and the entire sky incident on a horizontal surface, in clear and cloudy weather, as function of the season and the geographic latitude.

A survey of methods used in artificial respiration.

Studies of the physiologic effects of short wave diathermy.

An experimental study of the amplification afforded by hearing aids under conditions of actual usage.

Further research on anesthesia by means of refrigeration in surgery of the extremities.

Further development of method and portable apparatus for clinical determination of blood flow in the arm or leg.

Previous grants have yielded very gratifying results in basic scientific research.

### ARTIFICIAL RESPIRATION

Research in the field of artificial respiration, both manual and mechanical, is being continued. The survey of methods used in resuscitating the asphyxiated individual has been prosecuted for two years, and the Council expects to continue it for at least five years.

The investigation and acceptance by the Council on Physical Therapy of apparatus for administering artificial respiration does not constitute a recommendation to abandon manual artificial respiration. In emergency cases, especially those occurring outside medical institutions, apparatus whether inhalator or resuscitator is seldom if ever at the site of the accident. A period of ten minutes to half an hour or perhaps longer elapses before an apparatus arrives. It is of paramount importance that artificial respiration be instituted immediately, and the public should be given instruction on how to administer approved methods of manual artificial respiration such as are described in the American Red Cross First Aid Textbook.

The Consultants on Respirators have aided the Council in its investigation of equipment used to provide artificial respiration over long periods of time such as for patients having polio-When an epidemic of poliomyelitis strikes a community, the medical and hospital facilities especially with regard to respirators may be inadequate, and in an effort to relieve this situation to some degree the Council reviewed and adopted specifications for the construction of a homemade respirator. Reprints of "A Simple Workable Respirator" are now available. The homemade device is suggested for emergency purposes only. The more rugged commercially available equipment is recommended for prolonged treatment.

### ULTRAVIOLET RADIATION

For several years the Council on Physical Therapy has given consideration to ultraviolet generators designed for germicidal purposes. Studies have been made of the effect of these lamps

in schoolrooms, hospital operating rooms and nursery cubicles. Available critical evidence indicates that the ultraviolet radiation from these lamps will destroy bacteria, provided the air borne germs come within direct range of the lethal ultraviolet rays. Bacteria lurking in the shadows or under opaque objects will not be affected; in fact, thin films of grease, oil and other organic and inorganic matter, even though transparent, will protect the bacteria from destruction. Cross infection may be eliminated only under certain conditions. For example, babies surrounded by mechanical barriers and "curtains" of ultraviolet radiation may be protected from cross infection, provided care is exercised to avoid contamination by some other means such as careless nursing practice. The Council's report "Requirements for Ultraviolet Lamps for Disinfecting Purposes" contains further information on this subject.

#### RADIO INTERFERENCE

The Council has continued its cooperation with the Federal Communications Commission in an effort to solve the problem of radio interference caused by diathermy apparatus. Three frequency channels, 13,665, 27,330 and 40,995 kilocycles per second, have been tentatively assigned, although the tolerances of these frequency channels have not been fixed,

#### AUDIOMETERS AND HEARING AIDS

Work on an acceptable procedure for estimating percentage loss of hearing has progressed, and the Council in cooperation with its Consultants on Audiometers and Hearing Aids expects to make a definite report in the near future. Careful investigations have been made of the various hearing aids and audiometers on the market, and reports have been published.

#### EDUCATION

The Consultants on Education, under the supervision of the Council, have contributed an important service in the dissemination of reliable information on the true values of physical therapy in the practice of medicine. It is gratifying to note that several schools of medicine which formerly had no undergraduate courses in physical therapy now include courses in their curriculums as a result of the efforts of the Council on Physical Therapy.

### EXHIBITS

The Exhibit on Lame Backs was repeated at the Cleveland session in 1941 and was very successful. It will be presented again in 1942 with additional material. The Council provided. exhibits during the year at the meetings of the American Academy of Ophthalmology and Otolaryngology and the American Congress of Physical Therapy.

#### INVESTIGATIONS AND REPORTS

The Council has continued its investigation of physical therapy apparatus and has published reports of forty-five acceptances and of nine rejections. Most members of the medical profession probably are not fully aware of the tremendous amount of material consisting of reports, articles, advertising and correspondence which the members of the Council are obliged to review during the year. The members of the Council on Physical Therapy receive no remuneration for their services but give freely of their time and energy.

Cordial cooperation has been maintained with the National Bureau of Standards, the American Standards Association, the Food and Drug Administration and the Federal Trade Commission.

#### Summary

The Council on Physical Therapy has continued its work of investigating apparatus offered for diagnostic and therapeutic purposes and reporting its decisions in The Journal.

During the year the Handbook on Amputations, the Manual on Physical Therapy and numerous articles on physical therapy were edited and published, and Apparatus Accepted was revised.

Several grants in aid of research have been made. Research in the field of artificial respiration is being continued and expanded. Specifications for ultraviolet lamps designed for disinfecting purposes have been compiled and adopted.

Cooperation has been maintained with the Federal Communications Commission in an effort to solve the problem of radio interference caused by diathermy apparatus.

Work has progressed on an acceptable procedure for estimating percentage loss of hearing. Hearing aids and audiometers have been investigated and reports published.

Through the efforts of the Council's Consultants on Education, courses in physical therapy have been included in the curriculums of several schools of medicine that were without undergraduate physical therapy instruction.

Exhibits on physical therapy were presented at two medical meetings.

Forty-five acceptance reports and nine reports of rejection have been published, while many more pieces of apparatus have been investigated.

Correspondence relating to physical therapy apparatus has become a major part of the Council's work.

#### Council on Foods and Nutrition

The Council on Foods and Nutrition has continued in every possible way its policy of cooperation with governmental agencies in matters that come within the scope of the Council, and the facilities of the Council will no doubt be utilized to an ever increasing extent as the war continues.

Members of the Council have served on a number of important advisory committees to government agencies, especially the Food and Nutrition Board of the National Research Council. The recommended daily allowances formulated and adopted by the Food and Nutrition Board were approved by the Council on Foods and Nutrition for purposes of judging nutritional claims in advertising. The National Nutrition Conference for Defense held in Washington in May 1941 received the active cooperation of the Council.

### FORTIFICATION OF FOODS

The principal problems confronting the Council during the year covered by this report again have centered about the question of the fortification of foods with vitamins and minerals, and the Council has approved the enrichment of flour and of bread along the lines suggested by the National Research Council and developed by the Food and Drug Administration at public hearings. The Council has aided in the production of advertising material that promotes the use of enriched flour and bread in a truthful manner.

At the present time the Council believes that it is inexpedient and undesirable to add thiamine or other members of the vitamin B complex to sugar, syrups, candy, carbonated beverages and other products containing appreciable quantities of sugar. On the other hand, the Council favors the addition of vitamin A to oleomargarine and commends the Bureau of Animal Industry for removing its long time opposition to the presence of vitamins in establishments which prepare oleomargarine from fats of animal origin under federal inspection. In view of the action of the Food and Drug Administration to standardize vitamin A fortified olcomargarine at a level of 9,000 U. S. P. units of vitamin A to the pound, the Council raised its own standard of 7,500 U. S. P. units to this level as well. This amount is considered to be about the average vitamin A value for butter, but summer butter may contain more than 20,000 U. S. P. units of vitamin A to the pound.

The Council on Foods and Nutrition does not accept any general purpose foods other than milk when they are fortified with vitamin D. Evidence regarding the value of vitamin D fortified cereals is accumulating, however, and the Council is continuing to study this evidence. At the present time it appears that vitamin D is of value only in association with calcium and phosphorus. All evidence shows that the securing of a proper amount of calcium in the diet is fully as important as the vitamin D intake, and the Council has not given favorable consideration to the fortification of milk with more than the present accepted maximum quantity of vitamin D, which is 400 U. S. P. units of

vitamin D to the quart has been marketed, but the Council voted not to accept this product.

The question of mixed vitamin therapy was considered, and it was recommended to the Council on Pharmacy and Chemistry that favorable consideration be given to those polyvitamin preparations which are otherwise acceptable and which provide in the daily dose the various vitamins in quantities that are related in some uniform simple manner to the daily requirements of each. A general report on the subject has been prepared in cooperation with the Council on Pharmacy and Chemistry.

In cooperation with the Council on Industrial Health, consideration has been given to the question of indiscriminate vitamin administration to industrial workers. The Council on Foods and Nutrition disapproves this practice, although the value of vitamin therapy under the direction of a physician is recognized.

#### PROBLEMS AND PRODUCTS CONSIDERED

One of the most difficult problems before the Council has been the formation of a decision regarding tolerances for lead and arsenic in foods. Governmental authorities recently have raised the tolerance for lead and arsenic, but the Council on Foods and Nutrition voted to retain its old standards.

The Council gave further consideration to claims in advertising for the value of gelatin in combating fatigue and concluded that the evidence made available is insufficient to warrant any change in allowable claims for gelatin.

The tendency of firms to develop and promote the use of prepared dessert products especially for children was given careful study. The Council is of the opinion that desserts have no justified place in the dietary of the infant and will accept only those commercial products which contain a minimum of 50 per cent by weight of fruit or milk or a combination of fruit and milk.

The Council on Foods and Nutrition gradually is limiting its scope so that it may devote more attention to those products which are most important from the health point of view. This policy is being carried out gradually so that firms that have cooperated with the Council in its efforts to promote the preparation of good foods truthfully advertised would not be placed at a serious disadvantage.

Among the new products of interest that have been favorably considered by the Council have been various ingredients for use by bakers for the making of enriched bread, a new type of syrup made from corn starch by controlled hydrolysis, and an infant feeding preparation for infants that cannot tolerate cow's milk the feature of which is the adoption of a mixture of amino acids for the protein.

#### PUBLICATIONS

The book "Accepted Foods and Their Nutritional Significance" now is undergoing extensive revision. The supply of the book on the vitamins, which was developed in collaboration with the Council on Pharmacy and Chemistry, has been exhausted, and plans have been considered for the publication of a revised series of articles on this subject. The Council is planning to sponsor during 1942 a new series of articles on foods and nutrition.

### CHANGES IN MEMBERSHIP

During the year the Council lost through death the services of Dr. Mary Swartz Rose. A distinguished nutritionist, Dr. Rose had served the Council faithfully for a number of years and had contributed greatly to the effectiveness of its work. Dr. C. A. Elvehjen of Madison, Wis., was elected to succeed Dr. Rose as a member of the Council.

This report of the Council on Foods and Nutrition does not by any means reflect fully the activities of the Council during the past year, for the reason that it would require a report of excessive length to present in detail all matters that have received official consideration and to mention all the problems and products that have been brought before the Council. The report discusses only some matters of the most important, immediate interest in the field of nutrition.

### Summary

The Council on Foods and Nutrition during the year covered by this report continued in every possible way to cooperate with governmental agencies in matters coming within the scope of the Council.

The principal problems confronting the Council again centered about the question of the fortification of foods with vitamins and minerals, and the Council approved the enrichment of flour and bread along lines suggested by the National Research Council and developed by the Food and Drug Administration.

The Council at present believes it is undesirable and inexpedient to add thiamine or other members of the vitamin B complex to products containing appreciable quantities of sugar but favors the addition of vitamin A to oleomargarine and has raised its standard for this product to the level recently set by the Food and Drug

The Council does not accept any general purpose foods other than milk when they are fortified with vitamin D but is continuing to study the evidence regarding the value of vitamin D fortified cereals.

The question of mixed vitamin therapy was considered, and it was recommended to the Council on Pharmacy and Chemistry that favorable consideration be given to certain polyvitamin preparations.

The Council on Foods and Nutrition, in cooperation with the Council on Industrial Health, considered the question of indiscriminate vitamin administration to industrial workers and disapproved this practice.

Among difficult problems before the Council during the year were the formation of a decision regarding tolerances for lead and arsenic in foods, the consideration of claims in advertising for the value of gelatin in combating fatigue and the tendency of firms to produce and promote the use of prepared dessert products especially for children. The Council voted to retain its old standards with respect to tolerances for lead and arsenic. concluded that the evidence available is insufficient to warrant any change in allowable claims for gelatin and. since it is of the opinion that desserts have no justified place in the dietary of the infant, will accept only those commercial products which contain a minimum of 50 per cent by weight of fruit or milk or of a combination of fruit and milk.

The Council is gradually limiting its scope to devote more attention to those products which are most important from a health point of view.

Accepted Foods and Their Nutritional Significance, an official publication of the Council, is being revised and plans are being considered for the publication of a revised series of articles on the vitamins and a new series on foods and nutrition.

During the year the Council lost, through death, the services of Dr. Mary Swartz Rose, a distinguished nutritionist. Dr. C. A. Elvehjem was elected to succeed Dr. Rose as a member of the Council.

### THE CHEMICAL LABORATORY

The Chemical Laboratory marked its thirty-fifth anniversary in October 1941. The Laboratory has functioned continuously during this period to supply accurate and critical chemical information to the medical profession, primarily in connection with the consideration of products submitted to the Council on Pharmacy and Chemistry. Because of continued rapid advances in the therapeutic armamentarium, the work of the Laboratory has consistently increased in amount and scope, and the record of years of careful, constructive and varied service is one of which the Association can be justly proud.

Dr. A. E. Sidwell Jr., a member of the Laboratory staff for several years, was made Director of the Chemical Laboratory following the untimely death of Dr. Paul Nicholas Leech, former Director.

# TESTS AND STANDARDS

Each year brings forward many new synthetic therapeutic agents for which tests and standards must be elaborated and evaluated in connection with their consideration by the Council on Pharmacy and Chemistry and, in addition, numerous accepted products must be reexamined and new dosage forms of these

and of official drugs must be analyzed. During the past year the Laboratory has been particularly active in the preparation or critical consideration of standards for aluminum hydroxide gel, amylcaine hydrochloride, blended oils containing vitamins A and D, solutions and tableted preparations of calcium gluconate, delvinal sodium, dextrose in lactate-Ringer's solution, epinephrine in oil, mecholyl bromide and mecholyl chloride, merphenyl borate, merphenyl nitrate, merphenyl picrate, nikethamide, pyridoxine hydrochloride, seconal sodium, sulfadiazine and sulfadiazine sodium, sulfaguanidine monohydrate, sulfathiazole sodium and its hydrates, a number of antihemorrhagically active substances (vitamin K) including menadione and zinc insulin crystals and zinc peroxide medicinal. The complete roster of the products examined in the Laboratory during the year, exclusive of the various dosage forms of similar products considered, contains some seventy-two different therapeutically active substances.

Members of the departments of pharmacology of the University of Chicago and the University of Minnesota have cooperated with the Laboratory in problems concerning the standardization of epinephrine and sulfathiazole.

During the year the Laboratory has continued to give all possible assistance to other bureaus and departments of the Association and has cooperated with the laboratories of the American Dental Association, the Food and Drug Administration and many manufacturers in the exchange of chemical information concerning standards for the identity, purity and strength of various drugs.

From time to time, fellows of the International Health Division of the Rockefeller Foundation have been assigned to the Chemical Laboratory of the American Medical Association so that they might have opportunity to have the benefit of a period of basic training in drug analysis. Within the past year Mr. Jose Crusellas Ventura of Guayaquil, Ecuador, spent several weeks in the Laboratory. The members of the Laboratory staff greatly enjoyed and appreciated their association with Mr. Crusellas.

Members of the Laboratory staff have attended and addressed a number of meetings of chemical groups and have contributed original articles to important chemical publications. Work is in progress and plans have been formulated to augment the scope and efficiency attainable with the generally excellent laboratory equipment, particularly in connection with the facilities for microchemical and spectroscopic work.

#### Council on Industrial Health

### INDUSTRIAL HEALTH AND WAR INDUSTRY

A recent joint session of the Council on Industrial Health with the Subcommittee on Industrial Health and Medicine of the Federal Security Agency indicates that the Council has established satisfactory contact and has perfected its own organization to an extent that will make it of genuine service in the prosecution of the war. Specific developments in this direction have been the following:

It was agreed that the medical profession is in better position to assume a greater degree of responsibility for industrial health activity than ever before. Medical societies in states and counties have been supplied with recommendations calculated to accelerate this process and have also been repeatedly instructed that the physician in community practice must be prepared to provide industrial health services in medium sized and small plants and that a high degree of organization will be necessary to meet the medical requirements of war time industrial production.

It was recognized that, if industry is to absorb the products of accelerated industrial health training, some concomitant program of instructing industrialists in the advantages of medical supervision over workers is highly essential. It is the feeling that an agency for public information, preferably attached to the Subcommittee on Industrial Health and Medicine, should undertake this educational activity. Failure to push this type of voluntary program vigorously might logically lead to compulsory forms of industrial medical supervision according to the present European pattern.

The Council has recognized that adequate personnel is basic to a solution of medical service in industry, and it intends to

cooperate in as effective a manner as possible with the Procurement and Assignment Service. Since this war is being fought on the assembly lines as well as in the field, it would be a serious error to strip industry of its competent and qualified medical personnel even though many of them happen to be within the age limits and degrees of physical fitness considered desirable for the armed forces.

Not much progress has been made in promoting cooperation between bureaus of industrial hygiene in state and local governments and the committees on industrial health in state and local medical societies. Much greater effort will be made in this direction in the coming months. Recent reports from the Division of Industrial Hygiene of the U. S. Public Health Service indicate that thirty-six states, four cities, two counties and two territories conduct industrial hygiene bureaus requiring an annual expenditure of \$1,000,000. Activities of this kind are of unusual significance now, and a program of reciprocal helpfulness between the bureaus and the profession at large can represent a real contribution to industrial production.

During recent months the registration of volunteers for placement in war industry has occupied a considerable share of activity at the headquarters office of the Council. The organization of the Procurement and Assignment Service suggests that henceforth the Council may serve as a source of information to employers who are anxious to secure assistance in obtaining and retaining the services of industrial physicians. Notification of this change in method will be brought to the attention of manufacturers, commerce and trade associations directly and through business and trade publications.

#### DICTIONARY OF INDUSTRIAL HEALTH

The scope of the Dictionary of Industrial Health, a project which began as a contribution toward standardization in the field of industrial health nomenclature, has been successively expanded until the title "Dictionary" seems most applicable. Publication of this compilation will tend to stabilize accepted procedure in industrial health at a time when much interest in terminology and technic exists. It is expected that editorial revision by consultants and in the Council office will have been completed by early fall.

#### EDUCATIONAL ACTIVITY

The Council on Industrial Health has been requested by the Council on Medical Education and Hospitals to assume the initiative in calling the attention of educators and the profession at large to deficiencies in industrial medical education. A report has been prepared, representing a joint declaration by the Council and a special committee of the American Association of Industrial Physicians and Surgeons, containing definite recommendations about the importance of better teaching and its organization and content. This outline can be used, with suitable modifications, for the organization of continuation studies of the introductory or refresher type under medical society sponsorship or in medical schools. The material also can be adapted to extended periods of training designed to equip physicians as specialists in industrial practice.

The Council has recognized health education as a proper function of industrial practice, and special attention has been given to the employment of Hygeia as a means for acquainting employers and workers with the advantages of industrial health, its proper objectives and its methods.

In other respects the general details of the Council's educational activities continue as reported in previous years.

#### RELATIONSHIPS WITH GROUPS AND ORGANIZATIONS

Committees on Industrial Health in State and County Medical Societies.—Major emphasis must continue to be placed on improving the character of membership in cooperating committees on industrial health in the state medical societies and on extension of this type of organization down into the county societies. Field activity by the Council's headquarters organization will serve to encourage improved regional and local leadership as well as to recommend specific programs of investigation, correlation and education. Industrial Health Bulletins continue to serve as a means of interchange of expression between these committees and the Council. This activity, in

the opinion of the Council, exceeds all others in terms of practical results.

Sections of the Scientific Assembly.—The steps taken to arouse interest in industrial health in the sections of the Scientific Assembly through the creation of advisory committees have been remarkably productive. These sections are great reservoirs of authoritative information and have already served as sources of sound advice and help in the solution of special problems.

Other Agencies in the American Medical Association.—The Council has completed its first series of recommendations of objectives and functions in industrial health, entitled "An Outline of Procedure for Physicians in Industry," also reviewed and approved, after modification, by the Judicial Council. It is expected that this outline will demonstrate to the profession at large that industrial practice can be conducted ethically, scientifically and efficiently in full recognition of the best interests of the worker, employer, official agencies and the community at large.

A joint report has been prepared by representatives of the Council on Foods and Nutrition and the Council on Industrial Health on indiscriminate administration of vitamins to industrial workers, which effectively answers the many inquiries received about promotional activity among employers by manufacturers of vitamin products.

It has been recommended that the Council on Industrial Health develop an industrial medical formulary in collaboration with the Council on Pharmacy and Chemistry and with such additional help as may be necessary from the advisory committees of the sections of the Scientific Assembly. This formulary would define general standards to be applied to preparations and equipment, protective rather than therapeutic in nature, designed for use in the medical management or control of industrial exposures. A development of this kind would tend to avoid the necessity for setting up machinery to pass judgment on or approve individual preparations or equipment.

The Council has reviewed, with representatives of the Council on Physical Therapy, certain problems relating to the nomen-clature of respirators.

Members of the Council have been requested to prepare radio scripts on industrial health subjects of general interest as a part of the broadcasting program of the Bureau of Health Education.

Industrial Nursing.—The Council on Industrial Health has maintained its interest in industrial nursing, especially in view of a strong movement by nursing and public health organizations toward providing a program of service to small industry, which depends mainly on part time employment of personnel from visiting nurse associations. Since the physician must be the central figure in any completely dependable industrial health activity, these developments must be regarded with unusual interest by medical organizations. However, the Council expects to promote the professional status of the industrial nurse in every way possible and has recently responded favorably to an invitation to appoint a representative to act as consultant to a Committee of the American Public Health Association to Study the Duties of Nurses in Industry. Meanwhile the Council will engage, as necessity dictates, in independent investigation of industrial nursing activity, particularly in the preparation of standing orders for industrial nurses, part time nursing in industry at hourly rates, and a simple report form applicable for recording absences in small industry.

Manufacturing Organizations.—The Council has been interested in the industrial health programs in various stages of development of the National Association of Manufacturers and the U. S. Chamber of Commerce. Both organizations have investigated the merits of appraisal plans, and there is some prospect that a national campaign may shortly ensue to arouse interest in industrial health and to establish a means of appraising the efforts of established industrial medical services.

Organized Labor.—If the Council is to be regarded as an influential, impartial and unbiased agency representing medical opinion in the field of industrial health, it must give some consideration to the opinions of the beneficiaries of this form of medical activity. Study will be necessary to indicate the best means for acquiring information of this character and of giving it due consideration in the formulation of medical policy in this field.

### INDUSTRIAL PHYSICAL ENAMINATIONS

Repeated requests for information outlining definite procedure in the conduct of preemployment and periodic physical examination have made it imperative that the Council prepare an outline covering this subject to be made available to physicians called on to organize services of this description in industry. In the preparation of this outline the principles already formulated by the American Medical Association on periodic health examinations will be adapted to industrial use.

### OCCUPATIONAL DISEASE REPORTING

Available evidence indicates that occupational disease reporting is improving. Since progress cannot occur without reasonably dependable statistics on the nature and incidence of occupational disability, persistent effort will be made to arouse and sustain interest throughout the profession in this desirable practice.

### WORKMEN'S COMPENSATION

In the early discussions which led to the formation of the Council on Industrial Health, much emphasis was placed on the necessity for improvement in workmen's compensation procedure. Medical relations in this field dealt largely with economic considerations—the provision of medical care, methods of payment, critical analysis of contracts for medical care and hospitalization, medical testimony and disability evaluation. Important as these activities have been, the Council now believes it desirable to supplement them through consideration of the structure and administrative practices of the industrial commissions themselves. Much improvement can occur in the direction of better adjustment between compensation authorities. the medical profession and rehabilitation agencies. The Council is led to this conclusion since it is apparent that legislation with respect to occupational diseases is being adopted without any reference to medical considerations in much the same fashion as occurred when compensation for industrial accidents was being adopted. This failure to consult medicine in fields where sound medical advice is urgently needed has already led to a great many loose and faulty administrative practices.

The Council, therefore, has appointed a Committee on Workmen's Compensation, whose first report contains the following specific recommendations:

That the Council on Industrial Health prepare a series of authoritative articles on prevailing medical opinion about various forms of actual or alleged industrially connected disability, these to be published in The Journal of the American Medical Association. Ability of physicians, lawyers, courts and administrators to refer to established medical opinion of this character should do much to eliminate unwarranted claims. Such a series of articles should also emphasize medicine's essential position in the administration of workmen's compensation and would improve the status of the physician in this respect.

That effort should be made to assure recognition of medicine's interest in all proposed compensation legislation, especially in respect to proper representation on administrative boards.

That there be presented, preferably annually in The Journal, data dealing with workmen's compensation practice with special reference to medical considerations, these reports to reflect progress or lack of it in the various states and in the country as a whole.

That the committee extend its membership to include physicians and experts who have broad experience in compensation procedure and who can assist in the promotion of a campaign to improve through statutory revision the present undesirable elements in medical relations under workmen's compensation.

The Council has been notified of efforts to define conditions under which tuberculosis may be considered industrial in origin. Great interest is manifested in this development, since a proposal to compensate for tuberculosis would open the doors to health insurance through the inclusion of many other comparable types of chronic disease. Furthermore, employers would tend to exclude all persons who have or have had tuberculosis from any employment.

# INDUSTRIAL HEALTH RESEARCH

The Council has recently appointed a Committee on Research to define problems suitable for investigation, to recommend subsidization of suitable research projects by the American Medical

Association or others and to encourage investigations in harmony with the existing research programs of the American Medical Association and the National Research Council. It is also expected that there will be increasing necessity for the adoption of a program to support work which may be undertaken by cooperating committees of the sections of the Association's Scientific Assembly.

#### Summary

The Council on Industrial Health has held joint meetings with the Subcommittee on Industrial Health and Medicine of the Federal Security Agency and it has been possible to determine spheres of greatest usefulness under war time industrial production.

Although there has been much progress, great effort must be made to preserve existing qualified personnel and to create educational opportunities for industrial medical volunteers.

Better rapport should exist between committees on industrial health in medical societies and bureaus of industrial hygiene.

As in former years, much emphasis has been placed on educational activity, which has taken the form of annual congresses on industrial health, continuation study and extended training, publications, clearing house services and exhibits. One practical accomplishment has been the development of specific recommendations to medical schools concerning the organization, content and available facilities for improved undergraduate teaching. Results already obtained through field work have led the Council to conclude that this is far and away the most successful activity to date in arousing interest in practical organization for increased industrial health service.

The advisory committees which have been created in the sections of the Scientific Assembly have already demonstrated ability to undertake special assignments for investigation and report. Active cooperation has been maintained with many of the agencies in the head-quarters establishment of the Association, and particularly noteworthy results are the "Outline of Procedure for Physicians in Industry" and a recent report on "Vitamin Administration in Industry."

The Council has continued its interest in auxiliary professional groups such as industrial hygienists and nurses. Current plans for promotion of industrial nursing services are of especial significance, and steps have been taken to represent medical opinion in these developments.

Self-appraisal plans as a means of rating the adequacy of industrial medical departments is regarded as of considerable importance, and the Council is prepared to advance these activities in all practical and effective ways. The best methods of reflecting the opinion of organized labor in the field of industrial medical policy are also currently being studied.

In response to repeated requests for a dependable program of industrial physical examinations, an outline of principles which will be in substantial agreement with those already formulated by the American Medical Association in respect to periodic health examinations is being prepared. Persistent effort will also be made to arouse and sustain interest throughout the profession in the desirable practice of reporting occupational diseases to agencies concerned with vital statistics.

The Council is now preparing to make some substantial contributions to certain perplexing problems in the field of medical relations under workmen's compensation, having in mind the growing trend toward indemnification for occupational disease. Present plans include the preparation of authoritative statements on prevailing medical opinion on forms of industrially connected disability which will be available to physicians, lawyers, administrators and others. There should be annual publication of statistical and other data on workmen's compensation practice, with special reference to

medical considerations. The Council is continuing its interest in the relationship between trauma and disease and is currently studying conditions under which tuberculosis may be considered industrial in origin.

The Council on Industrial Health has appointed a Committee on Research to promote investigation in the field of industrial medicine, surgery and hygiene in harmony with the existing research programs of the American Medical Association and the National Research Council. The special investigations undertaken by cooperating committees of the sections of the Scientific Assembly also will merit substantial support.

#### Bureau of Health Education

The work of the Bureau of Health Education has for the most part been directed along the same lines as in previous years.

During 1941 the Bureau received and answered approximately ten thousand letters from laymen. Correspondence with physicians and cooperating agencies included the receipt of and replies to almost five thousand letters, while miscellaneous mail, including communications stimulated by the Association's radio broadcasting program and exhibits at the Cleveland Health Museum, the Chicago Museum of Science and Industry, the Milwaukee Midsummer Festival and several state and county fairs amounted to approximately fifteen thousand pieces.

#### BUREAU PUBLICATIONS

Sixteen new pamphlets were added to the list of publications maintained by the Bureau of Health Education, while eight of the pamphlets formerly used were revised and four discontinued. More than two hundred and three thousand copies of the publications sponsored by the Bureau were distributed through the Order Department in 1941 in addition to one hundred and eight thousand others sent out in quantities by the Bureau. Eighty-eight thousand health posters were ordered by a large industrial concern for distribution to its employees as an insert in its house organ.

The Director and Assistant Director of the Bureau have cooperated as fully as possible with the Editorial Department of The Journal and Hygela. Thirty-nine articles originating in the Bureau of Health Education were published in 1941 in publications other than those of the American Medical Association.

#### RADIO PROGRAM

In cooperation with the National Broadcasting Company, the first series of Doctors at Work programs was completed in June, at which time the sixth season of dramatized network broadcasting terminated.

The success of the program Doctors at Work left no logical course open except to continue with a second series, in which the adventures of the same fictitious young doctor, now in a wartime setting in an industrialized home community, were continued. Unfortunately, the National Broadcasting Company was unable to schedule the second series at an evening hour. The hour accepted was 5 to 5:30 p. m., Saturdays, eastern standard time. Approximately one hundred stations, including three Canadian stations, were in the network to which the program was available.

State and county medical societies and the Woman's Auxiliary to the American Medical Association have continued their valuable cooperation in publicizing the Association's broadcasting program.

At the Cleveland session radio broadcasts were arranged in cooperation with five local and network stations. There were eleven local broadcasts, three broadcasts on the networks of the National Broadcasting Company and two on those of the Columbia Broadcasting System.

The radio library service maintained by the Bureau showed a sharp decline in activity during 1941. Two thousand, two hundred and forty-six copies of radio talks were sent out on request. Sixty-one state and county medical associations received radio material suitable for local broadcasting. The

Bureau also assisted in preparing or editing radio scripts for other organizations.

### MEETINGS AND CONFERENCES

In 1941 the Director and the Assistant Director of the Bureau of Health Education appeared before one hundred and forty-eight audiences in various parts of the United States. These appearances involved more than 43,000 miles of travel, and communities in sixteen states were visited. It was not possible to accept all the invitations extended to the Bureau's staff; forty-seven such invitations had to be declined because of schedule conflicts or for other important reasons. Attendance at ten medical meetings addressed by the members of the Bureau's staff was one thousand, three hundred and forty-eight; one hundred and thirteen lay audiences were addressed with an attendance of more than thirty-seven thousand persons, and twenty-five addresses were delivered before audiences composed of teachers, nurses and members of other professional groups with an attendance of more than four thousand.

#### HYGEIA CLIPPING LOAN SERVICE

The HYGELA clipping collections were lent to four hundred and eighty-one physicians in forty states and Canada to aid them in preparing speeches for lay audiences. Local HYGELA loan collection projects are continuing to be initiated by several more medical societies. The continuation of this development tending toward decentralization reveals a wholesome trend and is, in fact, the only way in which this bureau can hope to meet all the health education needs of the medical profession.

#### COOPERATION WITH LAY ORGANIZATIONS

Joint Committee on Health Problems in Education (with the National Education Association).—The Joint Committee met in Atlantic City in February during the meeting of the American Association of School Administrators. Dr. Isaac Abt, a member of the Committee for thirty-one years, retired and was succeeded by Dr. Glenville Giddings of Atlanta, Ga. Dr. Charles C. Wilson, New York, was elected chairman of the committee for his third successive year, with Dr. Thurman B. Rice, Indianapolis, vice chairman, and Dr. W. W. Bauer, Chicago, secretary.

Deliberations of the committee had to do mainly with the publication known as Suggested School Health Policies and the preparation of a statement on the educational and nutritional aspects of school lunches and a supplement thereto dealing with sanitary requirements for school lunches.

A fifth Symposium on Health Problems in Education under the sponsorship of the Joint Committee together with the Section on Pediatrics, the Section on Preventive and Industrial Medicine and Public Health, the Section on Ophthalmology and the Section on Laryngology, Otology and Rhinology of the American Medical Association was held during the annual session of the Association in Cleveland.

American Association of School Administrators.—The Director of the Bureau of Health Education was appointed by the American Association of School Administrators to its 1942 Yearbook Commission on Health Education. This project, begun in 1940, was completed in 1941, during which year two meetings of the commission were held. The Yearbook appears to have been successfully completed and will be published early in 1942.

4-H Clubs.—The National Committee on Boys and Girls Club Work (4-H Clubs) continued in 1941 as in previous years. The recommendations of the Director of the Bureau of Health Education, who serves on this committee, looking toward the modification and the ultimate abandonment of the "healthiest boy and healthiest girl" contest have not yet been fully adopted, but there are some encouraging evidences that state leaders are beginning to interest themselves in further modifications of this contest.

National Congress of Parents and Teachers.—The National Congress of Parents and Teachers continues its summer round-up of the children, and the Director of the Bureau of Health Education continues as a member of the Advisory Board. Although the 1941 request that the Association furnish the congress half of its summer round-up blanks was approved.

the national congress has notified us that it will not request the blanks owing to the paper shortage

American Public Health Association—The Committee on Professional Education of the American Public Health Association, of which the Director of the Bureau is a member, met in New York late in the year and adopted a comprehensive set of standards and educational qualifications for health education personnel which, if adopted by the governing council of the American Public Health Association, recommended by the Conference of State and Territorial Health Officers, will probably serve as a basis for the merit systems in the several states receiving aid from federal social security funds

National Health Council—The Director of the Bureau of Health Education has been appointed by the Board of Trustees to membership on a Committee for the Study of Voluntary Health Agencies This has not yet begun to function

Other Organizations—Among other organizations with which the Bureau has maintained cooperative relations are the American Camping Association (advisory board), National Organization for Public Health Nursing (advisory committee, community nursing service), National Conference for Cooperation in School Health Education (executive committee), General Federation of Women's Clubs (advisory committee) and American Museum of Health (scientific advisory board)

### COOPERATION WITH STATE AND COUNTY MEDICAL SOCIETIES

The Bureau has continued to serve as a clearing house of information to state and county medical societies and to be of assistance in developing cooperative programs and satisfactory relationships between the medical profession and other organizations working toward similar ends

#### COOPERATION WITH GOVERNMENTAL AGENCIES

As in previous years, the Bureau has continued its cooperation with departments of the federal government and of state governments, including health departments and departments of education. It has also cooperated as fully as possible with local boards of health, school boards and libraries. The federal departments and divisions with which the Bureau has maintained cooperative relationship include the Federal Security Agency, Veterans' Administration, War Department, Department of Agriculture, Federal Works Agency, Department of the Interior and Department of Labor

The Director of the Bureau continues to serve on the General Advisory Committee of the United States Children's Bureau

#### PROTECTION OF RESEARCH

The Bureau of Health Education cooperated, as in the past, with the Committee for the Protection of Medical Research and distributed nearly five thousand copies of the pamphlet entitled "Animals in Research" to the members of graduating classes of recognized medical schools

A meeting of the Committee for the Protection of Medical Research with representatives from similar committees of other scientific agencies was held in Chicago on Feb 18, 1941. Ways and means for carrying out the defense of medical research in a national defense and (then) possible wartime setting were discussed.

### WOMEN'S HEALTH INTERESTS

The Bureau conducted a survey of women's health interests, and a preliminary summary of the results was published in the Bulletin of the Woman's Auxiliary to the American Medical Association. The Bureau also prepared material on nutrition for use by the auxiliaries as a part of the nutrition conservation program of the Federal Security Agency.

#### Summary

The Bureau of Health Education answered approximately ten thousand letters from laymen, five thousand from physicians and cooperating agencies and fifteen thousand stimulated by exhibits, health museums and radio programs. Sixteen new pamphlets were added to the list of publications, eight revised and four discontinued. More than three hundred and eleven thousand copies of Bureau publications were distributed in 1941. The Bureau contributed thirty-nine articles to publica-

tions other than those of the American Medical Association.

The radio series Doctors at Work was continued. Eleven local programs over five stations were broadcast during the Cleveland session, and programs were also broadcast over the networks. Approximately twenty-two hundred radio talks were sent out to state and county medical societies from the Bureau's radio library of almost a thousand titles.

The Director and Assistant Director appeared before one hundred and forty-eight audiences, involving more than 43,000 miles of travel in sixteen states and accounting for a total audience of approximately forty-two thousand, three hundred persons. Hygeia loan clipping collections were lent to four hundred and eighty-one physicians in forty states and Canada to aid them in preparing talks for local lay audiences.

The Bureau continued its cooperation with the National Education Association, the National Committee on Boys and Girls Club Work (4-H Clubs), the National Congress of Parents and Teachers, the General Federation of Women's Clubs, the American Public Health Association, the American Camping Association, the Joint Committee on Community Nursing Service and eight departments of the United States government. The Director continued to serve on the General Advisory Committee of the United States Children's Bureau and the 1942 Yearbook Commission of the American Association of School Administrators and was appointed to memberships on the Committee for the Study of Voluntary Health Agencies of the National Health Council and the Scientific Advisory Board of the American Museum of Health.

Miscellaneous projects included continued cooperation with the American Medical Association Committee for the Protection of Medical Research and a survey of women's health interests, a cooperative project with the Woman's Auxiliary to the American Medical Association

#### Bureau of Legal Medicine and Legislation

Mr J W Holloway Jr, who has served as Acting Director of the Bureau of Legal Medicine and Legislation since the retirement of Dr William C Woodward, has been designated as Director

#### MEDICOLEGAL ABSTRACTS VOLUME 3

The first volume of Medicolegal Abstracts was published in 1932 and contained the abstracts that had been printed in Till JOURNAL during the calendar years 1926 to 1930 inclusive. The second volume was published in 1936 and contained the abstracts that had appeared in THE JOURNAL from 1931 to 1935 A third volume, now in the course of preparation, will include the abstracts that have appeared in The Journal from 1936 through 1940 It has been suggested that the value of these compilations would be greater if abstracts were arranged in accordance with their subject matter Possibly this would be true The type for the abstracts, however, is held over the five year period and the difficulty and cost of rearrangement of such a considerable amount of type have not been justified by the himited circulation of the first two volumes of the series Since every effort has been made to provide an adequate index, the disadvantage of having the abstracts appear in the chronological order in which they were originally printed in THE JOURNAL is considerably

### TAXATION OF ACCOUNTS RECEIVABLE

In The Journal, May 24, 1941, page 2426, there was published an abstract of a decision of the United States Supreme Court that focused attention on a problem which confronts the estates of physicians in connection with the payment of income taxes for the year of death. During his life a physician normally reports as income for federal income tax purposes the amounts actually received. By reason of a provision in the income tax law, however, for the year of death there must be reported not only the actual amount received but also a first appraisal of the outstanding accounts on the books of the tax-

payer. The result of this requirement is that the reportable income for the year of death is artificially built up, bringing into play the higher surtax rates, and the estate of the deceased taxpayer may be subject to considerable strain to provide sufficient funds with which to pay the increased tax that necessarily results. This situation results from an amendment to the income tax law that was passed by the Congress in 1934. Prior to 1934, if a taxpayer died who had been on a cash receipts and disbursements basis for federal income tax purposes, the collectible accounts outstanding on his books at the lected.

The injustice of the present method of imposing income taxes on the taxpayer for the year of death has been given consideration by the Treasury Department. At the time this report is being prepared, the House Committee on Ways and Means is giving consideration to the formulation of a new revenue act. On March 3 the Secretary of the Treasury and his tax adviser appeared before that committee with recommendations for the act. The secretary pointed out that wartime rates make it imperative to eliminate as far as possible existing inequities which distort the tax burden on certain taxpayers. If the Congress follows the recommendation of the Treasury Department, an unjust burden will be lifted from the estates of taxpayers who have been on a cash receipts and disbursements basis for income tax purposes, especially the estates of physicians, dentists and other professional men.

Several suggestions as to procedures that a physician may adopt during his lifetime to lighten the income tax load on his estate were discussed in detail in a statement prepared by the Bureau and published in The Journal, Jan. 10, 1942.

# PROTECTION OF CIVIL RIGHTS OF PERSONS IN MILITARY SERVICE

During the first world war the Congress passed a measure to protect the civil rights of persons in military service. A similar measure was enacted in 1940 to provide the same type of protection for those now serving. The broad purpose of the law is to free persons in military service from harassment and injury to their civil rights during their term of military service and thus to enable them to devote their entire energy to the defense needs of the nation.

This law applies to all members of the Army, Navy, Marine Corps and Coast Guard, to members of the United States Public Health Service detailed by proper authority for duty with the Army or Navy, and to those in training who are undergoing education under the supervision of the United States preliminary to induction into military service. Civil liabilities are not extinguished by this law, but enforcement is deferred in those cases in which the opportunity and capacity to meet such obligations are impaired by reason of military service. A detailed analysis of the law was published in The Journal, Jan. 24, 1942.

#### PRIORITIES AND MEDICAL SUPPLIES

The existent emergency has made it necessary that supplies of essential materials be preserved to promote the national welfare. Sources of supply have diminished or disappeared altogether and the accelerating need of raw materials such as chemicals, metals and rubber for war purposes has resulted in an accompanying scarcity for civilian use.

Provision has been made, however, for the release of sufficient material for the production of equipment essential to the delivery of adequate medical care to the civilian population. A copy of the order under which this was accomplished (Preference Rating Order No. P-29) was published in The Journal, Sept. 27, 1941, page 1103. Later a drastic curtailment of the use of rubber for civilian purposes became essential because of the Far Eastern situation. This order prevented the use of rubber for the production of many articles necessary in the practice of medicine. The original rubber order was subsequently modified so that items made of rubber necessary in the practice of medicine could be produced. An analysis of this modifying order was published in The Journal, March 14, page 905. Furthermore, physicians have been given a priority classification in the distribution of automobile tires to the extent that such tires are needed in serving patients. Physicians will, it is hoped and

believed, cooperate with the spirit of the classification that has been accorded them in this respect.

The priority system that has been formulated does not and cannot be expected to function without occasional inadequacies. While the procurement of health supplies has been provided for, difficulty has been experienced by some physicians in obtaining needed repairs to professional equipment because of the fact that Preference Rating Order No. P-100, relating to repairs, maintenance and operating supplies does not cover professional equipment owned by private practitioners of medicine; it does apply to equipment owned by hospitals, clinics and sanatoriums. This matter has been the subject of conferences between a representative of the Bureau of Legal Medicine and Legislation and the Health Supply Section of the War Production Board and it is expected that a solution will be announced shortly.

# ADEQUACY OF SUPPLY OF NARCOTICS: RESTRICTIONS ON SALE OF PAREGORIC

Testifying on Dec. 17, 1941 before a subcommittee of the House Committee on Appropriations, H. J. Anslinger, United States Commissioner of Narcotics, expressed the belief that the supply of narcotics in the United States is sufficient to meet demands until 1945. Opium was obtainable from Turkey, he said, but the task of getting it to this country was a difficult one. That difficulty will no doubt increase. Concern was expressed by the commissioner, however, over the extent to which addicts are resorting to the use of paregoric to satisfy addiction, and a depletion of the reserve stock of the drug, built up to take care of military and naval needs and legitimate civilian use, was forecast unless the trend is halted. The commissioner pointed out that the per capita consumption of paregoric in this country is 1,500 per cent greater than it is in Canada, where sales are restricted to sales on prescription. He suggested that Congress will be asked to impose a similar restriction on sales of paregoric in the United States.

On March 25 there was introduced in the Senate a bill, S. 2405, by Senator George of Georgia, entitled "A bill to discharge more effectively the obligations of the United States under certain treaties relating to the manufacture and distribution of narcotic drugs, by providing for domestic control of the production and distribution of the opium poppy and its products. and for other purposes." The bill was introduced at the request of the Treasury Department to control the domestic production of the opium poppy and to insure an adequate supply of narcotic drugs for medicinal purposes in case of national emergency. Heretofore all opium for the manufacture of narcotic drugs has been imported. Present international conditions are of course making it increasingly difficult to obtain opium and, anticipating the possibility that the supply from abroad may be entirely shut off, the Treasury Department proposes in this bill to authorize the production of opium in this country under such strict government supervision as will insure against diversion to nonmedical use. The bill is pending in the Senate Committee on Finance.

#### COURT DECISIONS OF MEDICAL INTEREST

An ambiguity in the Harrison Narcotic Act concerning record keeping in connection with exempt narcotic preparations was clarified in a recent decision of the U. S. Supreme Court. That act, as far as the more potent narcotic drugs are concerned. excuses a physician from keeping records when he dispenses such drugs to patients on whom he is in personal attendance. With respect to the exempt preparations, the act imposes a duty of recordkeeping on "any manufacturer, producer, compounder, or vendor (including dispensing physicians)" of such preparations. The use of the designation "dispensing physicians" has led to the belief that the act imposes on a physician who dispenses any of the exempt preparations to a patient the duty of keeping a record of the transaction. In the case under discussion the Supreme Court said that Congress by using the words "dispensing physicians" clearly meant to exclude physicians administering to patients whom they personally attend.

The U. S. Supreme Court in another case, an abstract of which was published in The Journal, May 24, 1941, page 2426, upheld the action of the collector of internal revenue in including as income for the year of death a fair appraisal of

the interest of a physician in the accounts on the books of a partnership of which he was a member at the time of his death.

A decision by the Supreme Court of Nebraska clarified the law of that state with respect to the scope of osteopathy. The court said that a statute, such as obtains in Nebraska, granting a licensed osteopath the right to practice osteopathy in all its branches as taught in recognized osteopathic schools does not authorize such licenses to practice outside the recognized field of osteopathy, even if subjects outside the field are taught in such schools.

The Supreme Court of California, in a recent decision, upheld the action of a component county medical society in expelling a physician from membership. The physician involved in the case was charged specifically with a violation of a section of the Principles of Medical Ethics adopted by the society declaring it to be unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient or which interfere with reasonable competition among the physicians of the community. The charges against the physician involved his association with a county hospital. After the state medical association and the Judicial Council of the American Medical Association had sustained the action of the component society in expelling the physician, he appealed to the courts for relief. The California Supreme Court said that the courts are without authority to declare that a medical association is precluded from expelling a member who persists in practices which by the rules of the association, subscribed to in writing by the member, are unethical. Concerning any matter of policy involved in the adoption by the association of rules governing the conduct of members. the court was of the opinion that that was a matter for the membership itself to determine and that, in the absence of any showing that the policy adopted constitutes a violation of law, the courts will not undertake to interfere. Having agreed to be bound by the adopted rules, the court concluded, the physician was precluded from the judicial relief he sought.

### FEDERAL LEGISLATION

Certification of Insulin.-The patent on insulin held by the University of Toronto expired on Dec. 23, 1941. Under this patent adequate standards of purity and strength of insulin had been maintained. To continue this protection to the users of the drug, it became necessary that Congress act promptly to pass necessary legislation. Such action was taken, and on December 22 the President signed a bill to amend the Federal Food, Drug and Cosmetic Act by providing for the certification of batches of drugs composed wholly or partly of insulin. The new law is composed of four sections. Section 1 amends the act named so that its prohibitions against forging, counterfeiting, simulating or falsely representing, or using identification devices without proper authority will apply in the case of such identification devices as may be required or authorized for insulin. Section 2 provides that a drug shall be deemed misbranded if it is, or purports to be, or is represented as a drug composed wholly or partly of insulin, unless (1) it is from a batch with respect to which a certificate or release has been issued under regulations to be promulgated by the Federal Security Administrator and (2) such certificate or release is in effect with respect to such drug.

Section 3 directs the Federal Security Administrator to establish, pursuant to regulations, standards of identity, strength, quality and purity for drugs composed wholly or partly of insulin and methods of assay to determine whether batches of such drugs, or packages therefrom, meet the standards prescribed by such regulations for such drugs. If a standard of identity, strength, quality or purity for insulin is set forth in any official compendium, such as the United States Pharmacopeia, the administrator may not prescribe any differing standard. Section 3 also requires the administrator to establish testing and certifying facilities and procedure and to issue certificates for batches meeting the requirements. As over age or improperly packaged or labeled insulin is unsafe, such certificates are to be effective only for the periods prescribed in the regulations, and the certified batches and drugs therefrom are to be protected by such certificate only for the prescribed period or for such part thereof as such drug meets the labeling and

other requirements prescribed in the regulations for the protection of the public.

Authority is contained in section 3 too under which the administrator may determine and set out in the regulations schedules of fees which will cover the cost to the government of equipping and maintaining the facilities and compensating the personnel required for making the tests and assays. Provision was made in this section for the release, prior to the promulgation of regulations, of insulin which, in the administrator's judgment, could be released without risk as to safety and efficacy. This authority was given to the administrator in order to permit him promptly to release batches of insulin which had already been passed by the Insulin Committee of Toronto University as being of the necessary strength, quality and purity, thus avoiding the risk of a shortage. Section 4 of the law is designed to expedite the issuance of initial regulations. It directed the promulgation of the regulations within forty-five days, and they have been so promulgated.

Hospitals, Health Centers and Clinics in Defense Areas,-On June 28, 1941 the President approved a bill to provide for the acquisition of public works made necessary by the defense program. This program, which called for an initial expenditure of \$150,000,000, was considered necessary because of the inability of many communities to cope alone with the demand for public works in the face of a phenomenal growth of population resulting from the expansion of defense industry and enlargement of military reservations and posts. The term "public work" as used in this legislation means any facility necessary for carrying on community life substantially expanded by the national defense program, especially schools, waterworks, sewers, sewage, garbage and refuse disposal facilities, public sanitary facilities, works for the treatment and purification of water, hospitals and other places for the care of the sick, recreational facilities, and streets and access roads.

Whenever the President finds in any area or locality that an acute shortage of public works necessary to the health, safety or welfare of persons engaged in national defense activities exists or impends which would impede national defense activities, and that such public works or equipment cannot otherwise be provided when needed or could not be provided without the imposition of an increased, excessive tax burden or an unusual or excessive increase in the debt limit of the taxing or borrowing authority of the community in which such shortage exists. the Federal Works Administrator will be authorized, among other things, to make loans or grants, or both, to public and private agencies to provide the needed public works. The term 'private agency" is defined in the law to mean any private agency no part of the net earnings of which inures to the benefit of any private shareholder or individual. No department or agency of the United States, the law provides, may exercise any supervision or control over any hospital or other place for the care of the sick, which is not owned and operated by the United States, with respect to which any funds have been or may be expended under the law.

Pursuant to this law, projects have been approved for the construction of additional hospital facilities, health centers and clinics in defense areas in many states. The original appropriation was exhausted in the late fall of last year, and an additional \$150,000,000 has been appropriated. Projects are now being approved for construction under the new appropriation.

New Building for Army Medical Library.—On Sept. 24, 1941 the President approved a bill authorizing an appropriation of \$4,750,000 to construct a new building for the Army Medical Library and Museum and to purchase a site on which to construct the building. While the new authorization has been approved by the President, the money authorized by the bill must yet be actually appropriated by the Congress before the site can be acquired and the building constructed. Ordinarily when Congress authorizes an appropriation of money for stated purposes, the actual appropriation of that money follows as a matter of routine, but it now seems probable that the construction of the new building faces further delay.

Prostitution Near Military and Naval Establishments.—On July 11, 1941 the President approved a bill prohibiting prostitution within such reasonable distance of military and naval establishments as the Secretary of War and of the Navy shall determine to be needful to the efficiency, health and welfare of the Army and Navy The Secretary of War and of the Navy and the Federal Security Administrator are directed to take such steps as they deem necessary to suppress and prevent vio lations of this law and to accept the cooperation of the authorities of states and their counties, districts and other political subdivisions in carrying out the purposes of the law. It is specifically provided, however, that nothing in the law shall be construed as conferring on the personnel of the War or Navy Departments or the Federal Security Agency any authority to make criminal investigations, searches, seizures or arrest of civilians charged with violations of the law.

Disease Incidence in Railroad Industry - The Senate on July 22 1941 agreed to a resolution submitted by Senator Wheeler directing the Railroad Retirement Board to investigate the incidence of injuries and diseases incurred by employees through employment in the railroad industry and the social and economic consequences of such injuries and diseases. The Railroad Retirement Board is to report to the Senate Committee on Interstate Commerce at the earliest practicable time the results of its investigation. The annual report of the Railroad Retirement Board for the fiscal year ended June 30 1941 indicates that the investigation is under way and that the results when reported to the Senate Committee will provide a basis for legislation on compensation for railroad injuries The Railroad Retirement Board, with the cooperation of labor and employer organizations, is apparently proceeding to obtain through reports from employers, supplemented by interviews with injured employees, information relating to the following matters (1) the present cost of industrial accidents to the railroad workers in terms of settlements, judgments, legal fees, court costs, hospital expenses and so on, (2) the estimated cost of a workmen's compensation system and (3) the advantages or disadvantages to the injured employees and to the survivors of deceased employees of the present system of payments for injuries as compared with one or more possible workmen's compensation systems The Retirement Board has been for some time engaged in the formulation of a workmen's compensation act to apply to employees of the railroad industry, but it is assumed that the completion of the draft will await the results of the investigations now being made

Federal Aid to Increase Supply of Nurses for Defense -To provide funds to train nurses to meet the need for competent nursing services in connection with the national emergency, a bill approved by the President on July 1, 1941 authorized an appropriation of \$1,200,000 The amount originally appropriated proved to be insufficient, and an additional \$600,000 was authorized for use during the remainder of the present fiscal year. In authorizing this additional appropriation the House Committee on Appropriations said that during the first world war there were thirty thousand trained nurses in the military service Prior to the outbreak of the present war the estimated need for additional nurses for military services was ten thousand five hundred by June 30, 1942. The committee stated that there is already a shortage of nurses for civilian needs and that the additional appropriation will permit training for about two thousand additional student nurses by enabling many schools to admit second classes this year, and to bring forward the admission of more classes to May or June

Health in Areas Adjoining Military and Naval Reservations and Plants Engaged in Defense Work -For the fiscal year ending June 30, 1942 the sum of \$1,235,000 was made available to the United States Public Health Service to assist state and local health authorities in health and sanitation activities (1) in areas adjoining military and naval reservations (2) in areas where there are concentrations of military and naval forces. (3) in areas adjoining government and private industrial plants engaged in defense work and (4) in private industrial plants engaged in defense work. Of the total sum appropriated, approximately \$980,000, it was contemplated would be used in emergency health and sanitation activities in mobilization and war industry areas and the rest of the fund or approximately \$255,000, would be used to accelerate the program of the National Institute of Health in its studies and controls of industrial health hazards. As in the case of the appropriation for the training of nurses, the initial appropriation proved to be inadequate and an additional \$1,295,000 was made available, principally for malaria control work in the vicinity of concentrations of military and naval personnel. In connection with this supplemental appropriation the Surgeon General of the Public Health Service was authorized to engage in emergency health and sanitation activities in defense areas "independently of the state and local authorities." The original appropriation for these activities was made available to enable the Surgeon General of the Public Health Service to assist state and local health authorities.

Employment of Osteopaths as Interns in Army Hospitals — A bill making appropriations for the military establishment for the fiscal year ending June 30, 1942, approved by the President on June 30, 1941, contained an appropriation "for the pay of interns who are graduates of or have successfully completed at least four years' professional training in reputable schools of medicine or osteopathy and not to exceed \$720 per annum each period" The intern system in Army hospitals was maugurated shortly after the first world war in order to act as a means of securing physicians for the regular medical corps. In the fall of each year selections are made from fourth year medical students and internships are offered in army hospitals to the selectees each of whom is required to agree that following internship he will accept a commission and will serve for at least three years. The inclusion of the authority to appoint osteopaths as interns was objected to by the War Department on the ground that even if such appointments were made from schools of osteopathy the appointees could not qualify after the internship for commissions in the Medical Corps because they did not meet existing standards. On the recommendation of the War Department the Senate Committee on Appropriations deleted all reference to osteopaths in this particular provision. but on the floor of the Senate the deleted matter was reinserted

Hospital Facilities for Veterans—During the past twenty-two years the government has made available a total of \$208,723,029 for the construction of hospital and domiciliary facilities for veterans. As of June 30, 1941 there were 61,849 hospital beds under the control of the Veterans' Administration. On the completion of new construction for which funds were available on June 30, 1941 there will be 63,791 hospital beds for veterans. During 1941 the sum of \$3,500,000 was made available for additional construction of hospital facilities and for major improvements at existing facilities. The current annual report of the Veterans' Administration points out that since June 7, 1924, when hospitalization was first authorized for veterans of all wars without regard to the origin of their disabilities, 1,548,675, or about 78 per cent of all admissions, have been for the treatment of disabilities not connected with service

During the Seventy-Seventh Congress there have been introduced to date some eighteen bills proposing the construction of new veterans' hospitals in designated localities or proposing additions to existing institutions. No action has been taken on any of these bills. Another bill, H. R. 6241, introduced on Dec 15, 1941 by Representative Rogers of Massachusetts, proposes to authorize such sums as may be necessary to provide sufficient hospital and outpatient dispensary facilities to care for the "rapidly increasing load of disabled veterans" and to enable the Veterans' Administration to care for its beneficiaries in veterans administration facilities rather than in contract temporary facilities and other institutions. This bill is pending in the House Committee on World War Veterans' Legislation Furthermore, the Independent Offices appropriation bill for the fiscal year ending June 30, 1943, H R 6430, which has now passed the House carries an item in the amount of \$4,557,000 for major reconditioning, replacements and new construction of hospitals and domiciliary facilities for veterans. In the course of the hearing on this bill a question arose concerning hospital care of service men participating in the present war. In discussing this question the Administrator of Veterans' Affairs said that there has been much talk concerning the necessity of instituting immediately a large hospital building program and that Congress will undoubtedly be importuned by the veterans of the first world war to provide additional hospital beds at These veterans, General Hines stated, fear that the demands for hospitalization on behalf of the men serving in the present conflict will take priority over the hospitalization needs

of veterans of the first world war who are now or may hereafter be hospitalized because of nonservice disabilities. General Hines further said that Congress will be faced with a demand to hospitalize the veterans of the present war on the same basis as veterans of the first world war, that is, for service connected and non-service connected disabilities. The administrator advised against any hasty action in legislating for the second group at the present time. He forecast, however, that eventually hospitalization must be provided for the two groups on the same basis. With nearly eight thousand vacant beds in veterans' hospitals at the present time, however, General Hines did not feel that he could advocate the provision of any considerable number of additional beds immediately.

Chiropractors and United States Employees' Compensation Act.—A subcommittee of the House Committee on the Judiciary on Nov. 19, 1941 recommended to the full committee that the Tolan bill, H. R. 1052, be approved, to authorize chiropractors to treat the beneficiaries of the United States Employees' Compensation Act. The full committee has taken no action on the recommendation of its subcommittee.

Amendments to Soldiers' and Sailors' Civil Relief Act .- This act applies generally to transactions originating prior to its approval date, Oct. 17, 1940. One bill, S. 1842, which has been reported to the Senate with recommendations that it pass, proposes to amend the act to extend its benefits to mortgages and instalment contracts originating subsequent to the date named. A companion bill, H. R. 6521, is pending in the House Committee on Military Affairs. The original act provides no relief in connection with leases for offices. A pending bill, S. 1569, which has passed the Senate, provides, among other things, for the termination of any lease covering premises occupied for professional purposes, where the lease has been executed on his own behalf by any person who is in military service by virtue of the provisions of the Selective Training and Service Act or of the joint resolution under which the President was authorized to call out the reserve units. Any such lease, the bill provides, may be terminated on thirty days' notice in writing delivered to the lessor by the lessee. Both the Senate bill and a companion bill, H. R. 4936, are pending in the House Committee on Military Affairs.

Amendments to Social Security Act.—Beginning with the report of the Technical Committee on Medical Care, proposals have been repeatedly advanced to provide federal aid in making disability payments to persons unemployed by reason of illness. The national health bill, sponsored by Senator Wagner several years ago, contained such a proposal. The annual reports of the Social Security Board and the testimony of its chairman before. Congressional committees have emphasized the initial recommendation made by the Technical Committee. Whenever the proposal has heretofore been advanced, however, it has been definitely associated with plans to provide medical care to the sick workman to expedite his return to work and thus lessen the period for which cash disability benefits are required.

On Jan. 7, 1942 President Roosevelt in his budget message to the second session of the Seventy-Seventh Congress recommended "an increase in the coverage of old age and survivors' insurance, addition of permanent and temporary disability payments and hospitalization payments beyond the present benefit programs, and liberalization and expansion of unemployment compensation in a uniform national system." While the President made no reference to medical benefits, his recommendation must be considered against the background of governmental points of view expressed during recent years. It merits careful consideration. No bill has yet been introduced to translate the budget proposal into law, and until the details of that bill are known the proposal can be considered only with respect to its general implications. Some of these implications were referred to in an editorial that appeared in The Journal on March 7: "Disability Insurance and Hospitalization Benefits."

Bills are pending in the Congress awaiting action proposing to extend the federal old age and survivors' insurance benefits of the Social Security Act to certain employees of religious, charitable, scientific, literary or educational organizations, to extend aid to the physically handicapped, to provide financial assistance or other assistance including medical and dental aid

to needy transients, and proposing in other ways either to broaden the base of the act to include other beneficiaries or to provide additional benefits for employees now coming within the scope of the act. One resolution, introduced by Representative Celler of New York, proposes to create a committee of five members of the House of Representatives to study, investigate and report to the House on the proposals that have been made for amendment of the Social Security Act.

#### STATE LEGISLATION

The legislatures of forty-three states met in regular session in 1941. A brief reference to the more important laws, from the medical point of view, that were enacted in 1941 follows:

Basic Science Lows .- A basic science law was enacted in New Mexico requiring all applicants for licenses to practice any form of the healing art, before presenting themselves to their respective professional boards for examination and licensure, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology to be given by a board of basic science examiners. This board consists of one doctor of medicine, one osteopath, one chiropractor and "two laymen learned in the basic sciences." A basic science bill passed both houses in Tennessee by substantial majorities but was vetoed by the governor the same day the legislative session ended, thus precluding any efforts to pass it over his veto. The Arkansas Basic Science Act was so amended as to exempt from its provisions "any person who was a resident practitioner of chiropractic on January 15, 1940, and to whom a license to practice chiropractic was issued by the State Board of Chiropractic Examiners prior to that date," thus, in effect, legalizing licenses which had been issued by the chiropractic board to persons who did not possess certificates from the basic science board.

Medical Practice Acts .- Amendments were adopted to the medical practice acts of Arkansas, California, Colorado, Connecticut, Florida, Missouri, Nebraska, New York, North Carolina, Oklahoma, Pennsylvania, Washington and Wisconsin. Of particular interest are provisions that will require licensed physicians in Arkansas, Oklahoma and Washington to register annually with their respective licensing boards and to pay an annual registration fee. Another Arkansas amendment authorizes the court in which a physician is convicted of a crime involving moral turpitude to revoke or suspend his license to practice in the state. At least six different bills to amend the medical practice act were enacted in California, one of them exempting physicians serving in the armed forces from the payment of the required annual registration fee and another authorizing the revocation or suspension of the license of a licentiate who fails to use his name in connection with any "advertising of the medical business." A new Colorado law provides for the discontinuance of the licensing of midwives. The new Connecticut law, among other things, clarifies and simplifies the procedure in disciplinary actions. The Florida amendment eliminated those provisions of the prior law that required that of the ten members of the board of examiners five members should be "allopaths," three "eclectics" and two "homeopaths." The New York amendment exempts from the act a physician employee of the United States Veterans Administration while in the performance of his official duties. The North Carolina amendment provides specifically that any person practicing radiology, as defined, shall be deemed to be practicing medicine. Radiology was then defined to include the use of the fluoroscope, radium or roentgen ray for the purpose of examination, demonstration, diagnosis or treatment. The new Pennsylvania law amends the medical practice act in several important respects. Among other changes it redefined the practice of "medicine and surgery" as "the art and science having for object the cure of diseases of and the preservation of the health of man, including all practice of the healing art with or without drugs except healing by spiritual means or prayer."
The term "healing art" was also defined as "the science of diagnosis and treatment, in any manner whatsoever, of disease or any ailment of the human body."

Cult Practice Acts.—A new Arizona law provides a separate practice act for the osteopaths, who are hereafter to be examined and licensed by an independent osteopathic board. Under the

prior law, osteopaths were licensed under the medical practice act by the board of medical examiners. Amendments to existing osteopathic practice acts were enacted in Arkansas, Georgia, North Dakota, Vermont and Wisconsin. The Georgia amendment specifically confers on osteopaths the right to utilize narcotic drugs in connection with their practice. The North Dakota amendment requires an osteopath to renew his license annually and conditions renewal on the payment of a fee of \$3 and proof that in the preceding year he has attended at least two days of the annual educational program and meeting conducted by the state osteopathic association, or its equivalent. The Vermont amendment requires osteopathic applicants to have graduated at schools of osteopathy after a four years course of nine months each rather than after a three years course of nine months each, as the previous law required. The Wisconsin amendment will require after June 1948 that applicants for licenses to practice osteopathy and surgery, in addition to present requirements, present satisfactory evidence of having completed two years of college work including physics, chemistry, biology and English in an institution accredited by the University of Wisconsin.

Existing chiropractic practice acts were amended in North Dakota, Oregon and Tennessee. The Oregon amendment, among other things, specifically proscribes the practice of naturopathy by chiropractors and imposes additional requirements on applicants for licenses. In Tennessee the amendment will permit chiropractors to palpate, analyze and adjust by hand tissues adjacent to the spinal column in addition to articulations of the spine. It provides too, as does the North Dakota amendment, that annual renewal of a license is to be conditioned on proof that the holder has attended in the preceding year the educational program arranged by the state chiropractic association.

In South Carolina a new law permits naturopaths to "use and practice phytotherapy [sic], minor surgery, obstetrics and gynecology, autotherapy and biologicals."

Medical Service Plans.—New California, Massachusetts and Ohio laws authorize nonprofit corporations to establish and operate voluntary nonprofit medical service plans whereby medical services will be provided at the expense of such corporations to such persons or groups of persons as subscribe to plans which entitle each subscriber to certain professional services by licensed physicians and surgeons in their offices, in hospitals and in the home.

Hospital Service Plans.—Laws were adopted in Kansas, Minnesota, Nebraska and North Carolina to permit nonprofit corporations to operate hospital service plans whereby hospital care may be provided by the corporations or by hospitals with which they have contracts for such care to persons who subscribe to plans which entitle each subscriber and his dependents to certain hospital care.

Premarital Examination Lows.—Laws were enacted in Iowa, Maine, Ohio, Utah and Vermont to require each party to a proposed marriage as a condition precedent to obtaining a license to marry to present a physician's certificate that he or she is free of syphilis or is not in a stage of that disease that can be transmitted to the marital partner. The Utah law in addition requires each party to be free from any venereal disease in a communicable stage. A bill similar to the Utah law was vetoed by the governor of Wyoming. A new Massachusetts law requires each applicant for a license to marry to present a physician's certificate that he has examined the applicant for evidence of any infectious disease declared by the state department of health to be dangerous to public health and that he has informed both parties to the proposed marriage of any disease detected. However, even if such a disease is found the parties may marry.

Antepartum Examinations.—Laws were enacted in California, Connecticut, Missouri, Nevada, Oregon, Utah, Vermont and Wyoming requiring a physician or other person engaged in the antepartum care of a pregnant woman, or attending at the time of delivery, to obtain a specimen of her blood at the time of the first professional visit or within ten days thereafter and to submit it to an approved laboratory for a standard serologic test for syphilis.

Narcotic Drugs.—What is cited as the Uniform Narcotic Drug Act was enacted in Maine in 1941. A similar bill was killed in New Hampshire.

The Uniform Narcotic Drug Acts of Arkansas, Florida, Iowa, Maryland, Minnesota, Montana, Nebraska, New York, Oregon, Rhode Island, South Dakota, Tennessee, Texas and Wisconsin were so amended as to provide that the act shall not apply to administering, dispensing or selling at retail any medicinal preparations that contain in 1 fluidounce or, if a solid or semisolid preparation, in 1 avoirdupois ounce, not more than 1 grain of codeine or any of its salts. Under the Uniform Narcotic Drug Act a preparation is exempted if it does not contain in the quantities referred to more than 2 grains of opium, ¼ grain of morphine, 1 grain of codeine or ⅓ grain of heroin. The Tennessee amendment also exempts preparations in the quantitics stated that do not contain more than 2 grains of opium.

#### Summary

Medicolegal Abstracts.—A third volume of Medicolegal Abstracts, including those that appeared in The Journal from 1936 to 1940 inclusive, is in the course of preparation and will be published soon.

Taxation of Accounts Receivable.—Under existing law, the estate of a physician may be subject to strain to pay income tax for the year of the physician's death because of the fact that uncollected accounts must be included as income. The Treasury Department has recommended that Congress relieve the estates of taxpayers of this burden by changing the law so as to make the outstanding accounts on the books of a taxpayer at the time of his death taxable as collected.

Protection of Civil Rights of Persons in Military Service.—As more physicians enter military service, the provisions of the Soldiers' and Sailors' Civil Relief Act of 1940 assume greater importance to the profession. The broad purpose of this act is to free persons in military service from harassment and injury to their civil rights during the term of military service and thus to enable them to devote their entire energy to the defense needs of the nation. Pending legislation proposes further to extend the benefits of the act.

Priorities and Medical Practice.—War has made it necessary that supplies of essential materials be preserved to promote the national welfare. That necessity has brought in its wake a scarcity of certain materials for civilian use. Provision has been made, however, for the release of material for the production of equipment essential to the delivery of adequate medical care to the civilian population. Physicians have been given a preferred classification in the distribution of automobile tires, but only to the extent that such tires are needed in serving patients.

Adequacy of Supply of Narcotics.—The United States Commissioner of Narcotics believes that the supply of narcotics on hand is sufficient to meet demands until 1945 but expresses concern over the extent to which paregoric is being used by narcotic addicts. He forecasts a shortage in that drug if this trend is not halted and proposes that sales of paregoric be limited to sales on prescription.

Court Decisions of Medical Interest.—The United States Supreme Court holds that physicians who dispense attenuated narcotic preparations need keep no record of the transaction. That court also focused attention on the requirement that accounts on the books of a physician at the time of death are taxable under the income tax law. The Supreme Court of Nebraska clarified the law of that state with respect to the scope of osteopathy. The Supreme Court of California upheld the action of a component county medical society in expelling a member for infraction of the rules of professional conduct adopted by the society.

Federal Legislation.—A law has been enacted to safeguard the users of insulin. This legislation was necessary because of the expiration of the insulin patent under which adequate standards of purity and strength of the preparation had been maintained.

The sum of \$300,000,000 was made available for the construction of community facilities in defense areas, including hospitals, clinics and sanatoriums.

While an appropriation has been authorized to construct a new building for the Army Medical Library and to purchase a site, the authorized sum has not been made available. Indications are that the completion of plans for the new building will be deferred until after the present emergency.

The better control of the incidence of venereal diseases among the armed forces was the objective of a law prohibiting prostitution within such reasonable distance of military and naval establishments as the Secretary of War and of the Navy shall determine to be needful to the efficiency, health and welfare of the Army and Navy.

The Railroad Retirement Board, under a resolution adopted by the Senate, is investigating the incidence of injuries and diseases incurred by railroad employees. The information is being assembled to form the basis of workmen's compensation legislation covering employees of the industry.

Federal appropriations have been made available to train additional nurses to meet the needs of the emergency and to enable the Public Health Service, either independently or in cooperation with local health authorities, to engage in health and sanitation activities in defense areas.

The employment of osteopaths as interns in army hospitals was authorized, but the War Department has not yet availed itself of that privilege. A subcommittee has recommended favorably a bill to permit chiropractors to treat beneficiaries of the United States Employees' Compensation Act, but the full committee has not followed the recommendation of its subcommittee.

Demands persist for the construction of additional hospital facilities for veterans. Seventy-eight per cent of all admissions to veterans' hospitals since 1924 have been for treatment of disabilities not connected with the service.

The budget message of the President recommended disability and hospitalization payments to workmen unemployed by reason of illness. No bill has yet been introduced to translate this recommendation into legislation, but it merits careful consideration against the background of prior governmental points of view expressed during recent years associating the supplying of medical care with the granting of temporary disability benefits during illness. Bills are pending to broaden the base of the Social Security Act to include employees now excluded and to grant additional benefits to employees now covered by the act.

State Legislation.—A new basic science act was enacted in New Mexico. The legislature of Tennessee passed such an act, but it was vetoed by the governor. The basic science act of Arkansas was amended to exempt chiropractors who were licensed prior to Jan. 15, 1940.

Medical practice acts were amended in Arkansas, California, Colorado, Connecticut, Florida, Missouri, Nebraska, New York, North Carolina, Oklahoma, Pennsylvania, Washington and Wisconsin. A new osteopathic act was enacted in Arizona, and existing acts were amended in Arkansas, Georgia, North Dakota and Vermont. Amendments to the chiropractic acts were enacted in North Dakota, Oregon and Tennessee and to the naturopathic practice act in South Carolina.

Laws to authorize medical service plans were enacted in California, Massachusetts and Ohio, and similar enabling laws were enacted in Kansas, Minnesota, Nebraska and North Carolina to authorize the operation of hospital service plans.

Premarital examination laws were enacted in Iowa, Maine, Massachusetts, Ohio, Utah and Vermont. Antepartum examination laws were enacted in California, Connecticut, Missouri, Nevada, Oregon, Utah, Vermont and Wyoming.

A uniform narcotic drug act was enacted in Maine. The narcotic laws of Arkansas, Florida, Iowa, Maryland, Minnesota, Montana, Nebraska, New York, Oregon, Rhode Island, South Dakota, Tennessee, Texas and Wisconsin were amended to bring within the purview of such acts the attenuated narcotic preparations with the exception of preparations that contain in 1 fluidounce or, if a solid or semisolid preparation, in 1 avoirdupois ounce, not more than 1 grain of codeine or any of its salts.

#### Bureau of Medical Economics

The census of physicians for the Committee on Medical Preparedness, assigned to the Bureau of Medical Economics in June 1940, continued to engage the entire time of most of the Bureau staff during 1941. The most essential work in medical economics was carried on by one associate, one stenographer and one clerk with some assistance from other personnel. The urgent demands of the medical preparedness program precluded the development of much new work in medical economics and created difficulty in maintaining the routine of the Bureau

#### SURVEY OF MEDICAL PERSONNEL

The census of physicians began in June 1940. By July 16, 1940 medical preparedness schedules had been mailed to all physicians in the United States and its dependencies whose addresses were available. At this time 179,796 physicians were asked to provide the Committee on Medical Preparedness with information that could be used to classify physicians for military, civilian and industrial medical care.

Subsequent to the original mailing, approximately 6,000 schedules were sent to recently graduated or licensed physicians and others who for one reason or another were not included in the first mailing. Thus, a total of about 185,800 physicians received medical preparedness schedules. By Dec. 31, 1941 approximately 158,000, i.e. about 85.8 per cent of the total number of those who received schedules, had filled in the information and returned the schedules to the Committee on Medical Preparedness in Chicago.

Since it was necessary to have a punch card of information for each known physician in the United States and its dependencies, the 85 8 per cent return left the original task 142 per cent short of completion. It was evident at about the middle of 1941 that some physicians for various reasons would not provide the committee with the desired information, and arrangements were made to prepare incomplete schedules for all who did not fill out a schedule themselves. Some of these incomplete schedules were filled in by the secretarial staffs of state or county medical societies, but most of them were prepared in the Bureau of Medical Economics.

At the close of 1941, either a complete schedule had been received or an incomplete schedule had been prepared for every known physician in the United States and its possessions. All these schedules have been edited and coded and the information placed on punch cards.

The original list is being revised continuously by the addition of the names of new physicians and the removal of the names of deceased physicians. Other revisions that must be made continuously are changes of physicians qualifications and addresses and the designation of physicians who have been placed on active duty with the armed forces.

An extremely important service in connection with the census of physicians is the voluntary work of many prominent physicians who have quietly but painstakingly assembled confidential information relative to the professional qualifications of both specialists and general practitioners. This work has been completed for nearly 100,000 physicians and will continue until all lists have been completed. Because of the highly confidential nature of this information, these reports will not be published or made available for any except official purposes.

#### SPECIAL LISTS

Some of the lists that have been and are now being prepared for use in connection with military and civilian medical services are:

Specialists by states.
General practitioners by states.
Commissioned officers by states and corps areas. Negro physicians by states. Specialists by year of birth and states. An alphabetical listing of all physicians. A geographic listing of all physicians.

Other lists that are being maintained for use in connection with Medical Preparedness and the Procurement and Assignment Service are:

Essential members of the faculties of medical schools.

Physicians reported by county and state medical societies as essential for the maintenance of the health of the local communities.

Physicians now on active duty with the armed forces arranged by the states from which they entered the service.

Refugee physicians. Graduates of unapproved medical schools.

Physicians serving in some capacity with the Selective Service System. Changes of addresses.

Since all these lists require continuous checking and change, it should be evident that the census process is a continuing one which must be maintained to provide the latest and most reliable data pertaining to physicians in the work of procuring, assigning and conserving the medical resources of the

The accumulation of data pertaining to the medical profession was undertaken primarily to provide information that would be useful to the Army and Navy in securing commissioned medical personnel. To accomplish this purpose it became necessary to secure lists of commissioned medical officers on duty and information from the surgeon generals of the Army and Navy to show the estimated requirements of commissioned medical personnel, the number and names of physicians who had been ordered to extended active duty and the names of physicians who had been considered for commissions but who, for some reason, had been rejected. It became necessary also to secure interpretations of and changes in regulations, copies of directives, and comments on policies of the medical departments of both the Army and the Navy.

Any report concerning the medical preparedness activities of the American Medical Association as conducted through the Bureau of Medical Economics would be incomplete and lacking in appreciation if it failed to acknowledge the complete, free and sympathetic cooperation that has been given by the surgeon generals of the Army and Navy and their administrative staffs and by other officials of the federal government.

#### COOPERATION WITH THE PROCUREMENT AND ASSIGNMENT SERVICE

In October 1941 the President of the United States approved the creation of the Procurement and Assignment Service as a part of the Office of Defense Health and Welfare Ser-The function of the service is stated as follows:

The function of this office shall be to procure personnel from existing qualified members of the professions concerned. The office shall receive from various governmental and other agencies requests for medical, dental and veterinary personnel. These requests shall indicate the number of men desired, the time during which they must be secured, the qualifications and limitations placed on such personnel.

The office must then by appropriate mechanism arrange to secure lists of professional personnel available to meet these requirements, utilizing such existing rosters, public and private, as it may find acceptable. It shall also be authorized to approach such professional personnel as is considered to be available and to use suitable means to stimulate voluntary enrolment.

The board shall be authorized to establish such advisory committees and subcommittees as may be necessary. These committees shall represent the various interests concerned, such as medical, dental and veterinary schools, hospitals, Negro physicians, women physicians, etc. bers of such committees shall serve without salary but shall be entitled to actual and necessary transportation, subsistence and other expenses incidental to the performance of their duties.

To enable the Procurement and Assignment Service to utilize fully the information assembled in the census of physicians by the Committee on Medical Preparedness of the American Medical Association, the Directing Board of the Procurement and Assignment Service established a consultant office at the headquarters of the American Medical Association in Chicago, and Dr. Rosco G. Leland was appointed as supervisor of the consultant office.

Since the establishment of the Procurement and Assignment Service many lists of physicians' names have been sent to the consultant office for checking and clearance. These names are checked for race, year of birth, school and year of graduation, specialty, if any, and personal information. Information is provided when records indicate that the individual is not a doctor of medicine

Requests have been received for complete lists of specialists. The preparation of all such lists is extremely time consuming, since the names must first be selected from among all thus far listed and then checked for all available information, after which the latest known addresses are supplied. In many instances it is necessary to trace a physician through four or more directory reports of change of address to supply the last known address. Every possible method of shortening the process of checking has been devised, but the preparation of special lists still consumes an enormous amount of time and it is done as expeditiously as is possible.

#### PREPAYMENT MEDICAL SERVICE PLANS

At the 1941 session of the House of Delegates, consideration was given to a recommendation relative to the establishment by the Bureau of Medical Economics of some method of coordination and interchange of material pertinent to the administration of prepayment plans for medical care sponsored by medical societies. An additional member of the staff of the Bureau was secured for this purpose.

Forms for the collection of experience data from prepayment medical care plans were developed and used in one state in 1939. In August 1941 these forms were revised and sent to the administrative officers of the prepaid medical care organizations sponsored by medical societies, with the request that suggestions for any changes in the forms be returned to the Bureau. The suggestions that were received were incorporated in further revisions of the forms, which were again distributed about the middle of December 1941 to the officers of the medical care plans for further study and comment.

The purpose of these forms was set forth in an explanatory statement which accompanied them and also in the letter of transmittal, and they were finally prepared for use.

As rapidly as experience data are received by the Bureau, they will be analyzed, consolidated and prepared for use by medical societies that contemplate the development of similar prepaid medical services. The Bureau of Medical Economics will then become a clearing point for factual data pertaining to organization, administration, types of coverage, incidence of demand for service, costs and methods of payment of services made available on a prepayment basis and sponsored by medical societies.

The tendency toward the inclusion of medical services in group hospitalization plans has been discussed in previous reports of this bureau. Proposals for ward care plans and for the consolidation of medical services and group hospitalization plans have been offered. These matters will, no doubt, be subject to careful study and consideration by the House of

In most places where medical society sponsored plans have demonstrated a reasonable determination to attempt a solution of the problem of the distribution of medical services to the low income groups, no definite efforts to combine the benefits of medical and group hospitalization contracts have as yet culminated.

The House of Delegates has adopted principles to apply in the organization and administration of medical services and of hospital services. It is believed that these principles are sound and deserve more strict adherence.

No valid reason has been advanced to show that medical service organizations and group hospitalization plans cannot function separately as parallel services in communities that are sufficiently interested to support such efforts.

A new development in the group hospitalization movement is a proposal to make available under the Social Security Act a cash allowance of \$3 a day hospitalization benefit to employees

covered by the act who are unemployed because of sickness and who are in need of hospitalization.

The Wagner health bill, intended to implement the national health program, contained a provision to make available benefits to employees during the period of unemployment because of sickness. The House of Delegates, with some limitations as to the method of application, endorsed the principle of insurance against the loss of wages during sickness.

The present proposal has not progressed to a point of definite details that can be discussed specifically. However, this new movement seems to warrant the most careful consideration. It seems proper to inquire at this time whether an entirely new system of hospitalization is to be developed for employees entitled to benefits under the Social Security Act, or whether the present group hospitalization organizations are to be recognized or absorbed and expanded under proposed legislative enactments.

#### INDEX AND DIGEST OF OFFICIAL ACTIONS

In response to a demand for a convenient abstract of the official actions of the House of Delegates consolidated by subjects to include several years, the first edition of the Index and Digest of Official Actions of the American Medical Association was published in March 1934. This edition covered the years 1904 to 1933 inclusive. A supplement for the years 1934-1936 inclusive was published in 1937. A second supplement for the years 1937-1939 was published in 1940.

Although the arrangement of the material in each published group was alphabetical by subjects, the inconvenience and impracticability of assembling the abstracts in an ever increasing number of supplements became very clear. Accordingly, in 1941 all material that had been published, including the actions at the 1941 session of the House of Delegates, was rearranged and assembled in one volume arranged alphabetically. This volume comprises three hundred and twenty pages cut and punched to fit the loose-leaf binders that have been provided for the original publications. The new material, which is now ready for distribution, will be substituted for the sheets that are now being used.

It is recommended that in the future the Index and Digest be published in volumes rather than supplements, which accumulate as parts of one volume. The present rearranged sheets, which include the years 1904-1941 inclusive, would become volume I. Volume II would begin with the actions of the 1942 session and extend as far in the future as it seemed advisable, depending on the amount of material included in the Digest. Such an arrangement would facilitate the use of the material since the volumes would be kept small, but the arrangement in each volume would be similar.

#### PROGRAM OF FARM SECURITY ADMINISTRATION

A statement from Dr. R. C. Williams, chief medical officer in charge of the medical program for the Farm Security Administration, indicates that at present there are medical care plans sponsored by the Farm Security Administration operating in more than nine hundred counties in thirty-seven states. That program involves more than one hundred thousand families and includes more than half a million persons.

Quoting from Dr. Williams' statement:

As a result of much study and extended conferences, the desire has been expressed in several areas to undertake a program in an average rural county that would secure reasonably adequate medical care for all farm families in the county who desire to participate in the group medical care plan. Although, in general, any such experimental program would be patterned after the plan developed by the Farm Security Administration in cooperation with the organized medical profession, the program would endeavor to provide more complete care, including the correction of chronic physical handicaps that interfere with farm or household work, and a limited amount of dental service.

of curonic physical nandicaps that interfere with farm or household work, and a limited amount of dental service.

The thought is that the experimental county program would be a voluntary health insurance plan for all farm families in the county. This plan would be worked out between the county agricultural planning committee and the county medical society.

This proposal deserves the most careful consideration on the part of the House of Delegates, since it involves several subjects that have been previously considered but under somewhat different circumstances.

Such a program also deserves careful study in the light of some reports from rural areas to the effect that conditions

within those areas have changed in recent months and because of these changes, which appear to be improvements, emergency measures in the distribution of medical services do not appear to be longer needed.

#### PUBLICATIONS

During 1941 two of the publications of the Bureau were entirely rewritten. These titles are "Health Insurance in England" and "Basic Principles of Medical Economics." One publication, "Organized Payments for Medical Services," was completely revised.

Summary

In 1941 the medical preparedness work required the entire time of most of the personnel of the Bureau of Medical Economics. The initial part of the census of physicians was completed. There are now available for use 181,530 punch cards, which carry a large amount of information pertaining to the physicians of the United States. The census requires a continuing process to keep the information as nearly up to date and accurate as possible.

The Procurement and Assignment Service was created by order of the President in October 1941. The organization of this service included a consultation office at the headquarters of the American Medical Association in Chicago. Dr. R. G. Leland was appointed supervisor of the consultant office.

In compliance with the action of the House of Delegates in 1940, an additional member of the staff of the Bureau was secured and forms have been devised and put in use to secure data pertaining to the operation of medical service plans sponsored by medical societies.

The Index and Digest of Official Actions of the American Medical Association has been brought up to date in a single volume 'arranged alphabetically to include the original volume and the three supplements.

Developments in the field of group hospitalization have shown definite proposals to consolidate medical service contracts and group hospitalization contracts.

A proposal has been made to modify the Social Security Act to make available to employees covered by the act a cash benefit of \$3 a day hospitalization allowance. The details of this proposal are still too meager to permit any detailed discussion.

The Farm Security Administration medical care program is now operating in more than nine hundred counties in thirty-seven states. Benefits of this program are available to more than five hundred thousand persons. Reports seem to indicate that in some communities changed conditions make the need for such programs less urgent than they were some time ago.

### Bureau of Investigation

The Bureau of Investigation has continued to play its part in the educational activities of the American Medical Association. The work of the Bureau consists primarily in receiving and dispensing information concerning so-called patent medicines, quackery, frauds and faddists.

### INQUIRIES RECEIVED

Approximately ten thousand inquiries were submitted to the Bureau during the year covered by this report. These inquiries came from physicians, individual laymen, governmental agencies, Better Business Bureaus, commercial organizations, newspapers, radio stations and high school and college students.

The number of inquiries received from physicians has gradually decreased within the last three or four years. Four thousand such inquiries were received by the Bureau in 1938, while there were only two thousand five hundred in 1941. It is presumed that the decrease in the number of inquiries received annually from physicians is due to the fact that, under the provisions of laws enacted within the last few years, active ingredients of products for which claims of therapeutic efficiency are made must be declared on labels, and thus it is no longer necessary for physicians to inquire as they formerly did with respect to the composition of such products.

There has been a constant increase in the number of inquiries received from teachers and students. In 1940 the number of such inquiries was more than twice the number received in the preceding year, and this level was maintained in 1941. The explanation seems to be that high schools and colleges throughout the country have developed "consumer studies" to a rather remarkable extent. In 1939 inquiries from students represented 12 per cent of the total number presented to the Bureau, whereas in 1941 such inquiries represented 27 per cent of the total. It is gratifying to note that the interest of students in high schools and colleges has been so greatly aroused and that the Bureau of Investigation is being given opportunity to contribute to the education of the younger groups of the population with respect to the dangers of fraud and quackery in medicine.

Inquiries from newspapers, magazines, government agencies and Better Business Bureaus have been constant in amount during the last several years. In numerous instances, questions submitted to the Bureau pertain to more than one subject. Those subjects about which most inquiries are received are so-called cures for cancer, epilepsy and diabetes, coal tar drugs, cathartics and products widely advertised as being effective in the treatment of colds. A relatively large number of inquiries pertain to the activities of individuals and groups who resort to the use of more or less sensational advertising methods.

#### OTHER ACTIVITIES

The Bureau of Investigation has prepared a considerable amount of material for publication in The Journal. Some three thousand of the Bureau's pamphlets were distributed during the year. Lantern slides and a film strip of available slides have been supplied for use for educational purposes by physicians, teachers and others.

The Director of the Bureau during the year delivered addresses before fourteen lay audiences and professional groups under the sponsorship of medical societies and of state or county auxiliaries of the Woman's Auxiliary to the American Medical Association.

The Bureau of Investigation has cooperated as fully as opportunity has offered with agencies of the federal government, including the Federal Trade Commission, the Food and Drug Administration and the Postoffice Department.

#### Summary

The Bureau of Investigation continued during 1941 to play its part in the educational activities of the American Medical Association.

Approximately ten thousand inquiries from physicians, laymen, governmental agencies, Better Business Bureaus, commercial organizations, newspapers, radio stations and high school and college students were submitted to the Bureau in 1941. The number of inquiries received from physicians has gradually decreased within the last few years, but there has been a constant increase in the number of inquiries received from teachers and students. The subjects about which inquiries were most numerous during the year were so-called cures for cancer, epilepsy and diabetes, coal tar drugs, cathartics and products widely advertised as being effective in the treatment of colds.

Approximately three thousand of the Bureau's pamphlets were distributed during the year, a considerable amount of material was prepared for publication in The Journal, and lantern slides and a film strip of available slides were supplied to physicians, teachers and others on request. The Director of the Bureau addressed a number of audiences during the year.

The Bureau of Investigation has cooperated at every opportunity with various agencies of the federal government.

#### Bureau of Exhibits

The activities of the Bureau of Exhibits during 1941 comprised the Scientific Exhibit at the annual session; exhibits from Association headquarters shown at various state medical meetings and other scientific organizations; exhibits for the public at state fairs, expositions and similar public gatherings, and motion pictures. The year 1941 marked the first time in a

decade when the Bureau was not preparing or maintaining an exhibit at a world's fair.

#### THE SCIENTIFIC EXHIBIT

The installation of the Scientific Exhibit at the Cleveland session in 1941 was the most attractive in many years. New booth equipment, a new color scheme and fluorescent lighting added materially to the attractiveness of the display, while the commodious hall allowed ample space for the free movement of visitors. Likewise the caliber of the exhibits presented, the energy and perseverance of the demonstrators and the enthusiasm of the visiting physicians attested the high place which the Scientific Exhibit has reached as an instrument in graduate medical education.

There were three hundred and ten signed applications for exhibit space at the Cleveland session, of which one hundred and sixty-nine were accepted. Sixteen sections of the Scientific Assembly were all represented, the largest number of exhibits presented by any one section being twenty-six and the smallest number five.

One of the features of the Scientific Exhibit was a group of exhibits on national defense and war medicine, which was popular as well as timely.

The special exhibit on fractures was carried on under the direction of the same committee as previously, of which Dr. Kellogg Speed, Chicago, was chairman. The special exhibit on lame backs, somewhat larger than in the previous year, was presented for the second time under the auspices of the same committee, of which Dr. Frank R. Ober, Boston, was chairman.

The so-called educational group of exhibits consisting of presentations shown in the names of various national organizations and government agencies was eliminated for the first time in many years. At the Cleveland session each exhibit in this group was shown in the name of the person who demonstrated the exhibit.

Motion pictures were eliminated from the booths of the exhibitors at the Cleveland session and were shown in motion picture theaters only. Six motion picture theaters were maintained simultaneously and continuously throughout the week, with chairmen to introduce physicians who wished to explain their pictures and professional operators to project the films. The pictures were shown once each day.

The Committee on Awards, of which Dr. Walter M. Simpson, Dayton, Ohio, was chairman, worked faithfully and well, spending long hours each day visiting the exhibits and deciding the awards. The number of awards given this year totaled forty: two gold medals, two silver medals, two bronze medals, twelve certificates of merit and three special mentions.

#### ASSOCIATION EXHIBITS

There are thirty-nine exhibits available for loan purposes, of which fifteen are serviceable primarily for medical societies and scientific groups, eighteen for fairs and expositions and other public gatherings and six for either group with minor variations on emphasis. During 1941 thirteen exhibits were discontinued and seven new exhibits added. Exhibit material was sent out on one hundred and twenty-one occasions, the total number of exhibits being two hundred and twenty-four, since in some instances more than one exhibit was sent. In two states, California and Nebraska, the exhibits were used at numerous county fairs under the auspices of the respective state medical associations, considerably increasing the number of showings mentioned. The medical group of exhibits was sent out on fifty occasions, while those for the public were sent out on seventy-one occasions. The exhibits were shown in thirty states and the District of Columbia.

In accordance with the resolution adopted by the House of Delegates at the New York session of the American Medical Association in 1940, there has been active cooperation between the Bureau of Exhibits and the various health museums over the country. Exhibit material has been lent on a temporary or a semipermanent basis during the year to the museums in Cleveland; Chicago; Toledo, Ohio; Grand Rapids, Mich.; Newark, N. J.; Pittsburgh; Madison, Wis., and New York City. At the Chicago Museum of Science and Industry and at the Cleveland Health Museum a question and answer service was main-

tained, the answers to the questions being sent out by mail from the Bureau of Health Education of the American Medical Association.

#### MOTION PICTURES

There are twenty-three motion pictures available for loan purposes from the American Medical Association. Two new pictures were added during the year. Films were sent out to thirty states and to the District of Columbia, Hawaii and Canada on two hundred and seven occasions. In many instances two or more pictures were sent to the same place. The pictures were often shown to several audiences before they were returned, considerably increasing the number of showings. Requests for information concerning motion pictures were numerous, and an endeavor was made to inform the inquirers where pictures on certain subjects could be obtained.

#### Summary

The Scientific Exhibit at the Cleveland session in 1941 was notable for its attractiveness and for the high caliber of the exhibits presented. There were one hundred and sixty-nine individual exhibits and two special exhibits on fractures and lame backs. Six motion picture theaters were in continuous operation.

The loan exhibits of the Association number thirtynine. They were sent out on one hundred and twentyone occasions, the total number of exhibits being two hundred and twenty-four, since more than one exhibit was sent to some places.

Museums have been the recipients of health exhibits on a temporary or semipermanent basis. Question and answer services are maintained at the Chicago Museum of Science and Industry and at the Cleveland Health Museum.

There are twenty-three motion pictures in the loan collection of the Association, which are in constant demand. They were sent out to thirty states and to the District of Columbia, Hawaii and Canada on two hundred and seven occasions. In many instances two or more pictures were sent to the same place. Hundreds of requests for information concerning motion pictures on particular subjects were received.

#### Medicine and the War

Every officer, council, bureau and department of the American Medical Association, indeed the entire personnel of the headquarters office, are participating in the war effort of the nation. The publications of the Association, particularly The Journal, Hygeia and War Medicine, are devoting largely of their space to the contribution of medicine in the war.

# COMMITTEE ON MEDICAL PREPAREDNESS AND PROCUREMENT AND ASSIGNMENT SERVICE

The Committee on Medical Preparedness of the American Medical Association met in Washington, D. C., Aug. 19 and 20, 1941 to consider the resolution adopted by the House of Delegates at the annual session in Cleveland relative to the establishment of a procurement and assignment agency, to be concerned with the provision of medical personnel for the Army, Navy, Public Health Service and other governmental agencies. The committee at that time considered also other problems of medical service, including the inventory of the medical profession, deferment of medical students, interns and residents, provision of personnel for Selective Service boards and rehabilitation. In association with the committee at that time were representatives of the office of the Federal Security Agency, the U. S. Public Health Service, the Health and Medical Committee, the Selective Service System, the surgeon generals of the Army and Navy, and representatives of the personnel divisions of the Army and Navy medical departments.

Following these preliminary considerations, the director of the Office of Defense Health and Welfare, Mr. Paul V. McNutt, called a meeting under the auspices of the Health and Medical Committee, of which Dr. Irvin Abell, chairman of the Committee on Medical Preparedness of the American Medical Association, is also chairman. The Health and Medical Committee, by executive order of the President, Sept. 3, 1941, advises the

director of the Office of Defense Health and Welfare regarding the health and medical aspects of national defense exclusive of medical research and assists in the coordination of health and medical activities affecting national defense. The director of the Office of Defense Health and Welfare is also authorized to appoint advisory committees and subcommittees with respect to particular aspects of health, welfare, nutrition, recreation and related activities.

On Oct. 22, 1941 the Health and Medical Committee called a conference of representatives of all government services with representatives of the Committee on Medical Preparedness of the American Medical Association and various other agencies to consider the action taken by the House of Delegates of the American Medical Association, to wit: "That the United States government be urged to plan and arrange immediately for the establishment of a central authority with representatives of the civilian medical profession, to be known as the Procurement and Assignment Agency for physicians for the Army, Navy and Public Health Service and for the civilian and industrial needs of the nation." At this time a commission was appointed which included the President of the American Medical Association and the Editor of THE JOURNAL among others. This commission recommended the establishment of a procurement and assignment service and outlined the procedure for its establishment. On Oct. 30, 1941 a letter from Mr. Paul V. McNutt, director of the Office of Defense Health and Welfare, to the President was approved by the President and constitutes the authority under which the Procurement and Assignment Service operates.

The chairman of the Directing Board of the Procurement and Assignment Service is the President of the American Medical Association, Dr. Frank H. Lahey. The establishment includes a consultant office in the headquarters of the American Medical Association under the supervision of Dr. R. G. Leland. It includes also nine corps area committees with their offices. The chairmen of these corps area committees have been-selected in most instances from the membership of the Committee on Medical Preparedness of the American Medical Association. Officials of the Association are active also in the work of the advisory committees.

Following a conference held in Chicago, arrangements were made to supply to the National Roster of Scientific and Specialized Personnel copies of the punch card system developed in the headquarters of the American Medical Association covering the medical profession. A consultant committee to the National Roster includes Drs. Morris Fishbein, R. G. Leland and Olin West.

Following the declaration of war against Japan and Germany, an immediate expansion of the military-naval services was undertaken with increased demand for the enlistment of members of the medical profession. Publication in The Journal of the AMERICAN MEDICAL ASSOCIATION of two special enrolment blanks brought to the Procurement and Assignment Service the names of more than twenty-five thousand physicians who indicated that they would, when notified, apply at once to the Procurement and Assignment Service for commissioning in the Army. By the utilization of these twenty-five thousand replies the immediate needs of the Army and Navy Medical Departments for physicians have been satisfied. During the first week in April 1942 the new enrolment form and questionnaire prepared by the board of the Procurement and Assignment Service and by the National Roster of Scientific and Specialized Personnel was circulated to all the licensed physicians of the United States.

In the functioning of the Procurement and Assignment Service the county and state medical societies and corps area committees act to ascertain the essential character of the services done by physicians in various parts of the country and to advise the Procurement and Assignment Service and the Selective Service boards as to the necessity of such services. Through the consultant office in the headquarters office of the American Medical Association the information there available regarding individual physicians is also supplied to the Procurement and Assignment Service and to the personnel division of the medical departments of the Army and the Navy. The Division of Medical Sciences of the National Research Council through its con-

sultant committees has aided in the evaluation of the physicians who specialize with relation to appointments in the Army and Navy medical departments requiring specialistic service.

#### PHYSICIANS FOR BRITAIN

Early in 1941 the President of the United States requested a number of medical organizations, including the American Medical Association, to aid the American Red Cross in its effort to comply with the request of the British Red Cross for one thousand physicians to reinforce the British medical services, including the Royal Army Medical Corps and the Emergency Medical Service. The offices of the American Medical Association aided in extending this request to the medical profession and in informing the public about the work to be done. Through the lists available in the headquarters office of the American Medical Association, the names of all physicians under 35 years of age were supplied, and to each of those eligible was sent an application blank. When the United States entered the war in December 1941 this project was considered completed. Indeed, arrangements were made by the medical department of the British army to release to the American army those men who had been assigned to this service, the number being somewhat over one hundred. Twelve women physicians who had been sent to Great Britain are continuing their work in the British medical services.

#### THE SELECTIVE SERVICE

Up to February 1942 more than twenty-eight thousand physicians had enrolled with various phases of the work of the Selective Service. In the department of The Journal devoted to Medicine and the War, all official bulletins of the Selective Service System directed especially to the medical profession have been given circulation.

Special consideration has been given to the proposal for prehabilitation of registrants. Information has also been supplied relative to projects for rehabilitation.

At the meeting of the secretaries and editors of state medical societies, Brig. Gen. Lewis B. Hershey, director of the Selective Service System, expressed the appreciation of the Selective Service for the cooperation of the medical profession. He said "I do not possess control of the English language adequate to tell you what the work of anywhere from twenty thousand to fifty thousand of the medical profession of America has done in the last year in Selective Service. . . . I do believe you occupy a peculiar position in the minds of the people. . . . You still do have some of that combination that came from long ago when the medicine man was something a little more than a human being."

Officials of the American Medical Association, including the President, Dr. Frank H. Lahey, the Secretary and General Manager, Dr. Olin West, and the Editor, Dr. Morris Fishbein, attended a conference called by the Selective Service System to consider the possibility of a program for rehabilitation of rejected selectees. The views there expressed have been significant in guiding the development of this project. Eventually such rehabilitation was begun as an experiment in the states of Maryland and Virginia. The offices of the American Medical Association have been of service to the Selective Service System in the listing and evaluation of physicians who are cooperating in the rehabilitation program.

### INFORMATIONAL SERVICES

The Library of the American Medical Association, in association with the Editorial Department, has made available to the Medical Department of the U. S. Army foreign and domestic medical periodicals, books and other informational material concerning the medical facilities and the health conditions of various sections of the world into which the Army and Navy of the American government may be sent.

Through the current medical literature department, under Dr. George Halperin, complete bibliographies and abstracts concerned especially with medical problems of aviation, chemical warfare, shock and similar subjects have been prepared. These have been supplied to the special committees of the Office of Scientific Research and Development and of the Division of Medical Sciences of the National Research Council for use in the work which they are conducting. Much of this abstract

material is also made available to the medical profession generally and particularly to the military services through WAR MEDICINE.

#### CIVILIAN DEFENSE

The offices of the American Medical Association have cooperated fully with the United States Office of Civilian Defense in the extension of information to the medical profession as to its participation. The special medical bulletins of the United States Office of Civilian Defense have been published in full in The Journal of the American Medical Association. Officials of the Association have on many occasions consulted with Dr. George Baehr, chief medical officer, and with other officials of the Office of Civilian Defense. By action of the Board of Trustees Miss Lois Stice, for several years news editor of publicity assistant in the Editorial Department, was lent to the Office of Civilian Defense to aid in medical extension and has now been associated with that work for almost a year. The offices of the Secretary of the Association have been utilized by the Office of Civilian Defense in special mailings of informational material directly to the officers of state and county medical societies for use by the Office of Civilian Defense in extending its work to the medical profession of the nation.

#### PERSONNEL OF THE HEADQUARTERS OFFICE

The personnel of the headquarters office of the Association has been rendering many services to governmental agencies in connection with the war effort:

Dr. Olin West, Secretary and General Manager of the American Medical Association, has acted as secretary of the Committee on Medical Preparedness of the American Medical Association, consultant to officials of the Selective Service System and the Office of Defeuse Health and Welfare, and member of consultant committee, National Roster of Scientific and Specialized Personnel.

Dr. Morris Fishbein, Editor of The Journal of the American Medical Association, has served as chairman of the Committee on Information, Division of Medical Sciences, National Research Council, consultant to the Medical Committee, Office of Scientific Research and Development, consultant to the Selective Service System and Office of Defense Health and Welfare, chairman of the Committee on Information, Procurement and Assignment Service, editor of War Medicine and vice chairman of the Medical Committee, Civilian Defense, City of Chicago.

The Bureau of Exhibits has been cooperating with various governmental agencies in the development of exhibits for demonstration at the Atlantic City session in 1942. The director of the Bureau, Dr. Thomas G. Hull, is a member of the Medical Advisory Committee of the Illinois State Council of Defense.

The Council on Industrial Health has been cooperating with the Subcommittee on Industrial Health and Medicine of the Health and Medical Committee in the Office of Defense Health and Welfare. Plans have been developed for coordination of various activities in the field of industrial health for the conservation of personnel, for the stimulation of essential research and for the correlation of regional, state and local agencies concerned with civilian defense and committees on industrial health of state and county medical societies. Information is being disseminated among industrial plants on organization for medical and other services required by sabotage, bombing or other catastrophies.

The Biographic Department and the Bureau of Investigation of the American Medical Association have been developing important information regarding physicians and other personnel in the medical services.

The Bureau of Legal Medicine and Legislation has served in an advisory capacity to several federal agencies with relation to the analysis of laws relating to medical licensure and the acceleration of medical education. A special statement has been developed regarding the civil rights of physicians when they enter military service. The Bureau has also conferred with the War Production Board with reference to priorities for medical equipment.

The Bureau of Health Education has contributed radio programs dealing specifically with medical service in industry

and civilian services for a nation at war. Other broadcasts have concerned nutrition and housing problems in war. Emphasis has been placed on the President's May Day proclamation calling for immunization against smallpox and diphtheria. A special outline and bibliography have been prepared on nutrition for the use of the Woman's Auxiliary in the promotion of classes in nutrition. The following pamphlets have been reprinted from Hygeia and are being widely circulated as a part of the educational program:

Our Selectees Are Healthier, by Lieut. Col. A. C. Koontz. Health at the Crossroads, by M. R. Kinde. How Well Do You Know Your First Aid? by K. F. Wells.

The Council on Pharmacy and Chemistry has been of assistance to several agencies in conferences regarding the supply of drugs and in determining which drugs are of established therapeutic value. Several members of the Council have carried the work of the Council directly to some of the consultant committees of the National Research Council. Indeed, practically all the members of this council cooperate with federal agencies and coordinate the work of the Council with governmental projects.

The Council on Foods and Nutrition has also aided through its members in the work of various agencies of the Army and Navy and the National Research Council. The Council has cooperated in the development of recommended daily allowances of dietary essentials and gave its support to the National Nutrition Conference for Defense. Special reports have been issued on nutritionally improved or enriched flour and bread and on the indiscriminate administration of vitamins to workers in industry. Nine of the members of the Council are also members of the Food and Nutrition Board of the National Research Council. One of the members serves as head of the Specifications and Test Unit, Standards Section, of the Office of Price Administration in Washington. The Secretary of the Council, Dr. F. C. Bing, devotes time to service on the Subcommittee on Vegetables, Fats and Fruits and also on the Executive Committee of the Food and Nutrition Board of the National Research Council. He serves also as consultant to the Vitamin Division of the Food and Drug Administration and is on a Chicago committee on nutrition. Another member of the Council's staff, Dr. W. B. Bradley, is on the Victory Garden Committee of the Chicago area.

The Council on Physical Therapy has prepared a Handbook on Amputations and has cooperated with the Subcommittee on Physical Therapy of the National Research Council in the preparation of a Manual of Physical Therapy.

The Department of Press Relations of the headquarters office aids in the dissemination of information to both the medical profession and the public on the Procurement and Assignment Service for Physicians, Dentists and Veterinarians. The head of this department is also active on the publicity committee for the Emergency Medical Services of the Office of Civilian Defense in Chicago. A special edition of the American Medical Association News containing abstracts of articles and announcements in War Medicine is developed by this department for each issue of War Medicine.

The Bureau of Medical Economics, which was designated to conduct a census of physicians for the Committee on Medical Preparedness, now has a complete alphabetical listing of 181,530 physicians, representing the original circularization of schedules to physicians of the United States and its dependencies. This process is a continuing one in which the names of deceased physicians are removed, the names of new physicians are added, the locations of physicians are changed and the qualifications are modified to represent the most recent and authentic information concerning the physician. The present activities in connection with the census of physicians and all the lists that have been prepared therefrom consist in clearing the names of physicians that are received from the Procurement and Assignment Service. Between Jan. 3 and March 23, 1942 inclusive the Bureau processed for the Procurement and Assignment Service the names of 7,132 physicians. In addition to the lists of names that have been processed, a large number of names have been submitted by telegraph for immediate clearance. The Bureau has also prepared lists of specialists for use in connection with the rehabilitation program administered by the Selective Service System. More than 5,619 names have been processed and placed on state lists for this purpose. The lists of physicians prepared for use in connection with the Selective Service System rehabilitation program must of necessity be incomplete at the present time, since as yet not all the specialists in the United States have been listed, and names must now be drawn from incomplete lists. The process of preparing these lists is further complicated by the fact that not all physicians on the listing sheets are rated, and it is necessary for the director to enter the rating according to the information that has been supplied. On some of the lists the rating was supplied by the committee that entered the information.

In cooperation with the United States Army, the United States Navy and the Selective Service System, the Council on Medical Education and Hospitals has assisted in securing deferment of medical students and premedical students who are matriculated in approved medical schools until completion of their undergraduate studies and one year of internship. Believing that the further education of a certain number of physicians is vital to the future welfare of the country, the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals have appointed a committee whose chief purpose is to formulate plans whereby a percentage of interns may be given an opportunity to continue their training in the special fields of medicine.

Every effort is being made by the Council in connection with the acceleration of the medical curriculum to speed the production of physicians. For this purpose a liaison committee of the Council and the Association of American Medical Colleges has been appointed. While the Council is of the opinion that the adoption of a program for an accelerated curriculum for approved medical schools is a decision which should be determined by each medical school, it stands ready to assist the individual schools in the reorganization of the undergraduate curriculum to maintain adequate standards of medical education.

In cooperation with the Procurement and Assignment Service the faculties of medical schools have been classified with respect to availability for medical service in national defense. At the request of the War Department, the Council requested all medical schools to advise faculty members considered necessary for the operation of a medical school that they should not serve as a member of an affiliated hospital unit.

In response to a telegram from Dr. George Baehr, medical officer, Office of Civilian Defense, dated Dec. 10, 1941, letters, together with bulletins on national defense, were sent to all hospitals having over twenty-five beds. This was done within twenty-four hours after Dr. Baehr's request was received.

The acute shortage of physical therapy aides reported by the Central Physical Therapy Board of the Office of the Surgeon General of the U. S. Army is being studied by the Council in an effort to determine the number available for service or in training. In this connection the Council has assisted in the establishment of concentrated courses to accelerate production of physical therapy personnel. Aside from the physical therapy studies, the Council has investigated the availability and made an inventory of technical personnel in all hospitals in the United States. This study covers laboratory and x-ray technicians, dietitians, pharmacists, medical record and other librarians, medical stenographers, occupational therapists, dental hygienists and social service workers.

In relation to civilian defense, the Council has studied the availability of blood and plasma banks in hospitals approved for intern training and residencies in specialties.

The Council on Medical Education and Hospitals is represented on the National Committee on Education and Defense, a committee sponsored by the American Council on Education and the National Education Association.

#### Summary

Every officer, council, bureau and department of the American Medical Association and every member of the headquarters personnel is participating in the war effort of the nation.

Committee on Medical Preparedness.—This committee met with representatives of various government agencies

in Washington, D. C., Aug. 19 and 20, 1941, to consider the resolution adopted by the House of Delegates at the Cleveland session relative to the establishment of an agency for the procurement and assignment of medical personnel for the Army, the Navy, the Public Health Service and other government services.

On Oct. 22, 1941 the Health and Medical Committee of the Federal Security Agency called a conference of representatives of all government services with representatives of the Committee on Medical Preparedness and various other agencies. At this meeting a commission was appointed which recommended an outline of procedure for the establishment of the Procurement and Assignment Service. The President of the United States on Oct. 30, 1941, authorized the establishment of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians under the Office of Defense Health and Welfare Services, of which Mr. Paul V. McNutt is director. The chairman of the directing board of the Procurement and Assignment Service is the President of the American Medical Association, Dr. Frank H. Lahey. The Service includes a consultant office in the headquarters of the American Medical Association under the direction of Dr. R. G. Leland, nine corps area committees and various advisory committees.

Arrangements have been made to supply the National Roster of Scientific and Specialized Personnel, cooperating with the Procurement and Assignment Service, with copies of the punch cards covering the medical profession that have been developed at Association head-quarters.

Two special enrolment blanks recently published in The Journal brought to the Procurement and Assignment Service the names of more than twenty-five thousand physicians who indicated that, when notified, they would apply at once for commissions, and the immediate needs of the Army and Navy medical departments have thus been satisfied.

Physicians for Britain.—During 1941 the American Medical Association, at the request of the President of the United States, aided materially in extending to the medical profession the request of the British Red Cross, through the American Red Cross, for one thousand physicians to reinforce the British medical services. When the United States entered the war this project was considered completed, and arrangements were made by the medical department of the British army for the release of more than one hundred American physicians who had been assigned to this service. Twelve American women physicians are continuing their work in the British service.

Selective Service.—Up to February 1942 more than twenty-eight thousand physicians were enrolled in various phases of the work of the Selective Service System. Officials of the American Medical Association attended a conference called by the director of the Selective Service System to consider a possible program for the rehabilitation of rejected selectees. Experimental effort in this direction was begun in Maryland and Virginia.

Civilian Defense.—The American Medical Association has cooperated fully with the Office of Civilian Defense in the extension of information to the medical profession.

Headquarters Personnel.—The Secretary and General Manager of the Association, Dr. Olin West, the Editor of The Journal, Dr. Morris Fishbein, and the Director of the Bureau of Medical Economics, Dr. R. G. Leland, have personally rendered a great deal of service to governmental agencies in connection with the war effort.

The Bureau of Exhibits, the Council on Industrial Health, the Biographic Department, the Bureau of Investigation, the Bureau of Legal Medicine and Legislation, the Bureau of Health Education, the Council on Pharmacy and Chemistry, the Council on Foods and Nutrition, the Council on Physical Therapy, the Department of Press Relations, the Bureau of Medical Economics

and the Council on Medical Education and Hospitals have each cooperated in every possible manner with every government department and have contributed specifically and materially to the furtherance of the nation's war effort.

### Committee on American Health Resorts

A meeting of the Committee on American Health Resorts held in January 1941 resulted in decisions to proceed with the preparation of rules for listing acceptable health resorts and the publication of these rules when approved by the Board of Trustees, the preparation of scientific articles to be published in The Journal and the gathering and compiling of information An informal conference of members of the Committee was held at Cleveland during the American Medical Association meeting in June.

#### WORK OF THE COMMITTEE

The office work of the Committee is supervised by Dr. W. W. Bauer, Director of the Bureau of Health Education. During the first six months of 1941 this work consisted largely in the writing of follow-up letters to health resorts in an effort to get as high a percentage of returns as possible from the preliminary questionnaires sent out and in compiling and summarizing information

Six hundred forty-five questionnaires were sent to an equal number of institutions believed to exist. Of these, two hundred and seventy-seven were returned mostly in a state of incompleteness necessitating much additional correspondence. In the case of two hundred and fifty-eight institutions to which questionnaires were sent, it was developed through various sources that they either had been closed or were not operating as health resorts or, for other reasons, should not be included in the list of institutions possibly eligible for inclusion in a register which might be compiled under the proposed rules of the Committee.

The following analysis concerning medical direction in health resorts has been made:

*Institutions which employ mineral water, mud or both for treatment purposes (these may also employ mineral water for therapeutic drinking in addition).
† Institutions which employ mineral waters for therapeutic drinking

only.

‡ Institutions which use the Battle Creek system or a similar system plus climate and sunshine as natural resources—no mineral water, and

#### RULES OF THE COMMITTEE

The following rules and explanatory matter have been adopted by the Committee and approved by the Board of Trustees:

Recognizing the value of those phases of medical treatment included under the general classification of health resort or spa treatment such as chimate, thermal and mineral waters, sea water and peloids (minds) the House of Delegates of the American Medical Association in 1938 authorized the appointment of a Committee on American Health Resorts. This Committee was accordingly appointed by the Trustees

This Committee hist prepared a questionnaire which could be sent

This Committee first prepared a questionnaire which could be sent to known health resorts asking for information as to their natural therapeutic resources and domiciliary and recreational facilities and, more important, the medical facilities available and the medical supervision of the use of therapeutic facilities available.

A list of health resorts was then compiled from various sources including books, government publications, the records of the American Congress on Physical Therapy, tourist guides and miscellineous sources. Through an extensive survey by questionnaire and corresponding a comprehensive list was developed of health resorts in the United States

The Committee next proceeded to establish and define certain minimum fundamental standards which would assure the safe and successful use of natural therapeutic resources according to established scientific procedure. These standards have been expressed in the rules, which are subject to modification as experience indicates

The Committee now plans to offer an opportunity to American health resorts to apply for a listing which the Committee proposes to compile This listing will include health resorts which compily with the rules of the Committee. Application blanks will be furnished on request addressed to the Committee on American Health Resorts, American Medical Association, 535 North Dearborn Street, Chicago

On receipt of an application properly filled out the Committee will, with all possible promptness, cause inspection to be made of the applicant's premises and will make such other investigations as the Committee may deem advisable. A refort will be compiled, submitted to the applicant and published. If the applicant is found to comply with all the

rules of the Committee, the name of the health resort will be included in the Committee's list during such time as compliance with the rules of the Committee continues.

of the Committee continues.

When any modifications of the rules are deemed necessary, those resorts already listed under rules as previously adopted will be notified promptly and will be given reasonable opportunity to comply with the modified ruling or voluntarily to withdraw from the listing.

#### RULES

Object of Rules—The following rules with such amendments as may be added from time to time have been adopted by the Committee on American Health Resorts of the American Medical Association with the primary object of identifying for the medical profession and the public those health resorts which are shown by investigation of their location, climate, personnel and management to merit recognition by the medical profession.

Definition.—A health resort is defined as "an institution which gives major attention to the use of the special climatic and other natural therapeutic resources including mineral waters, peloids, etc., with which it is endowed by reason of its location." While the use of the natural resources is the prime object or purpose of the institution, other remedies may be applied as an adjunct

List —American health resorts which are found by the Committee to conform to the letter and spirit of the following rules will, on application approved by the Committee, be placed on a list to be published by the Committee.

Application -To be considered for inclusion in the Com mittee's list, formal application must be made to the Committee according to the following formula

(a) Formal application for consideration should be written on stationers of the applying health resort, addressed to the Secretary of the Committee on American Health Resorts, American Medical Association. 535 North Dearborn Street, Chicago.

(b) This application should be accompanied by complete information on (1) ownership, (2) personnel, (3) equipment, (4) method of operation, (5) method of promotion.

(c) Eight copies each of all recent advertising, descriptive booklets, pamphiets, circulars, promotional form letters and any other promotional matter pertaining to the health value of the resort should be submitted

(d) All correspondence with the secretary should be in duplicate

RULE 2 Claims and Advertising—The claims made for a resort must be acceptable to the Committee, and all advertising material must be presented with applications. A resort will not be listed or retained if the management makes unwarranted, exaggerated or misleading statements in any of its advertising.

Rule 3 Medical Supervision -Medical supervision must meet with the approval of the Committee and must be of such character as to place proper safeguards about the patient to protect him from mistreatment or dangerous treatment. Institutions which permit attendants or tech or dangerous treatment. Institutions which permit attendants or tech nicians to alter or supplement a physician's prescription or to prescribe treatment without restrictions or medical supervision will not be listed An institution applying for listing will be scrittinized most carefully as to the character of the safeguards placed about the patient by way of medical supervision and the efficiency and good faith with which the rules governing these needs are enforced.

Inspection -An institution which makes application cannot be given formal consideration until it has been inspected by an inspector designated for the purpose by the Committee

RULE 5. Removal from List -If in the opinion of the Committee a listed institution fails to live up to the letter and spirit of these rules or engages in practices contrary to established scientific procedure, the Com mittee may remove the institution from the list

Committee Decision Final-In making application for inclu sion in the Committee's list, the applicant agrees that final decision as to listing, nonlisting or subsequent removal shall rest with the Committee

#### SCIENTIFIC PAPERS

Titles were chosen and authors invited to prepare a series of papers on health resorts and health resort therapy for publication in The Journal, and work on these papers is now going forward.

APPLICATION BLANKS

A supply of application blanks to be used by institutions making formal application for listing under the rules of the Committee has been printed and is on hand for distribution as soon as the rules of the Committee have been published.

The Committee on American Health Resorts is composed of Dr. Walter S. McClellan, Acting Chairman, Dr. Euclid M. Smith, Dr. M. B. Jarman, Dr. W. Paul Holbrook and Dr. Frank H. Krusen.

# Committee to Study Air Conditioning

The Committee to Study Air Conditioning has as its chief function the continuous appraisal of developments and publications in the field of air conditioning as related to health and the interpretation to the medical profession of their significance. An attempt is made to limit the committee's activities to air conditioning in its strictest sense, but inevitably its work extends into the related fields of ventilation, air exhaust systems, aerial bacteriology, and so on.

During the period covered by this report the chief activity of this committee has been the compilation and digestion of all available records and reports on air conditioning and closely related topics for the five year period ended Jan. 1, 1941. Similar compilations for the year 1941 are now in progress, By classification this committee has available in abstract form extensive material related to all commoner aspects of air conditioning, including such items as ozone in air conditioning, infection in relation to air borne organisms, ventilation of air raid shelters, ventilation of mines, air conditioning of naval vessels and air conditioning of windowless structures. Although no policy exists at this time for ways and means for making such materials available to individual physicians or groups, it is the desire of the committee to cooperate with all physicians through the furnishing on request of whatever materials may be at hand on any specific topic associated with air conditioning.

From time to time the committee, as such or through its members as individuals, prepares timely material on air conditioning, as represented by the article on "The Importance of Clothing in Air Conditioning" by C. P. Yaglou and Anne Messer published in The Journal of the American Medical Association in October 1941. Under some circumstances the committee will sponsor the publications of noncommittee members when it may be determined that the contents of such publications serve the purposes of the committee in the guidance of the medical profession in air conditioning developments and practices

Respectfully submitted.

CAREY P. McCord, Chairman WALTER M. SIMPSON. C. P. YAGLOU.

#### Committee to Study the Relationship of Medicine and Law

In accordance with the provisions of the resolution submitted to the House of Delegates at the Cleveland session by Dr W. G. Phippen, delegate from Massachusetts, and approved by the House of Delegates, a Committee to Study the Relationship of Medicine and Law has been appointed. The members of this committee are Dr Alan R. Moritz, chairman, Boston; Dr. Harrison S. Martland, Newark, N. J.; Dr. E. R. Cunniffe, New York City, and Mr. J. W. Holloway Jr., Chicago

This committee has held one meeting with members of the Committee on Medico-Legal Problems of the American Bar Association, and progress already has been made toward carrying out the intent of the resolution adopted by the House of Delegates

### Proposed Committee to Confer with Specialty Boards

The resolution submitted to the House of Delegates at the Cleveland session by Dr. L G. Christian, delegate from Michigan, providing for the appointment of a committee to confer with specialty boards, has received consideration, first by the Executive Committee of the Board of Trustees and later by the Board as a whole.

In view of the nature of conditions created by the war emergencies and because the methods adopted by some of the special boards have undergone changes and apparently are subject to further change, the Board of Trustees believes it to be inexpedient to appoint a committee at this time for the purpose indicated in the resolution. It may be desirable, when conditions created by present emergencies have ceased to exist, that such a committee can be appointed with the expectation that more effective plans pertaining to the certification of specialists can be devised.

### The United States of America versus the American Medical Association and the Medical Society of the District of Columbia

An appeal was taken in the case of the United States versus the American Medical Association and the Medical Society of the District of Columbia from the verdict rendered after trial before the District Court of the United States for the District of Columbia resulting in a conviction of the American Medical Association and the Medical Society of the District of Columbia This appeal was heard by the United States Court of Appeals

for the District of Columbia in February 1942 At the time of preparation of this report, no decision has been announced

Respectfully submitted

ARTHUR W BOOTH, Chairman ERNEST E IRONS, Secretary. R L SENSENICH WILLIAM F BRAASCH ROGER I LEE ELMER L HENDERSON RALPH A FENTON JAMES R BLOSS C W ROBERTS

#### ADDENDA TO REPORT OF BOARD TRUSTEES OF

### Report of the Committee on Scientific Research for 1941

In 1941 twenty-four grants, amounting to \$7,550, were made in response to forty-two applications. There were fewer applications and grants than usual, in both a fall of about 8 per cent as compared with 1940 The work under twenty-seven

#### Financial Statement for 1941

Balance, Jan 1 1941	\$ 3 051 60
Appropriation for 1941	13,700 00
Refund, grant 413	153 86
Refund, grant 463	50 00
Refund, grant 512	102 48
Refund, grant 531	41 37
Refund grant 547	150 00
Refund, grant 563	8 99
Refund grant 566	2 35
Refund grant 570	96
Refund, grant 572	118 90
Refund, grant 589	84 96
Refund, grant 592	5 00
Refund grant 602	371 34
	\$17 841 81

### GRANTS AND EXPENSES PAID IN 1941

Grant 599, William H Welker Grant 600, W R Tweedy Grant 601, Barnett Sure Grant 602 Doran J Stephens Grant 602 Doran J Stephens Grant 603, Norris J Heckel Grant 604, Hans Popper Grant 605, Harry G Day Grant 606 Meyer M Harris Grant 607, Fritz Lexy Grant 607, Fritz Lexy Grant 608, Excrett J Exans Grant 609, C E Cahn Bronner Grant 610, H O Burdick Grant 611, M R Todd Grant 612, Roland K Meyer Grant 613, Robert W Virtue Grant 613, Robert W Virtue Grant 613, Robert W Virtue Grant 615, Frederick M Allen Grant 615, Frederick M Allen Grant 617 Mury Juhn Grant 618 H M Weaver Grant 619, Prul Thomas Youn, Grant 620, T T Chen Grant 621, William M Cahill Grant 622, Timothy Leary Clerical expense	\$350 00 125 00 600 00 400 00 250 00 350 00 250 00 250 00 300 00 125 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00 200 00
Clerical expense Committee expense Printing	280 65 6 55
	\$8 437 20

previous grants is listed as completed, proper reports on results having been published or accepted for publication and full accounts made of the expenditures. The articles now listed do not necessarily cover all the results of the research designated as completed Additional results may be published long after a grant has been closed on the records of the committee. The work under forty-five grants prior to 1941 is incomplete, in most cases active work is in progress and in many cases reports have been published, while in other cases final publication is under way Two grants have been closed without any published record of the work, in I case on account of technical difficulties, in the other case because the grantee died

\$9,404 61

Balance on hand December 31 1941

During the year unexpended balances of twelve grants, in all \$1,090.21, have been refunded

The financial summary for 1941 is presented, also brief accounts of the grants closed during the year, of the pending grants from previous years and a list of the grants made in

Respectfully submitted

COMMITTEE ON SCIENTIFIC RESEARCH OF THE AMERICAN MEDICAL ASSOCIATION LUDVIG HEKTOEN, Chicago, Chairman Term expires, 1946 MARTIN H FISCHER, Cincinnati Term expires, 1945 N W Jones, Portland, Ore Term expires, 1944 JOHN J MORTON, Rochester, N Y Term expires, 1943 E W GOODPASTURE, Nashville, Tenn Term expires, 1942.

### GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH

#### NEW GRANTS-1941

William H Welker, University of Illinois College of Grant 599

Medicine, \$350, water soluble proteins
Grant 600 W R Tweedy, Loyola University School of Medicine, Chicago, \$125, effect of magnesium deficient diet on serum phosphatase activity in albino rat

Grant 601 Burnett Sure, Agricultural Experimental Station, Payette ville, Ark, \$600 new factor in vitamin B complex essential for reproduc tion and lactation

Grant 602 Doran J Stephens, Strong Memorial Hospital, Rochester, N Y, \$400, effect of undernutrition of guiner pig on thyroid and overs Grant 603 Norris J Heckel, Rush Medical College, Chicago \$250, effect of sex hormones on seminal fluid

Hans Popper, Cook County Graduate School of Medicine, Grant 604 Chicago, \$350, study of vitamin A and lipoids by fluorescence microscopy
Grant 605 Harry G Day, Indiana University, \$400, physiologic Harry G Day, Indiana University, \$400, physiologic significance of zinc

Grant 606 Meyer M Hirris, Psychiatric Institute New York, \$250, food factors in muscular disease

Grant 607 Fritz Levy, Davis Memorial Hospital, Elkins W Va,

\$250, study of marrow cells Grant 608 Everett I Evans, Medical College of Virginia, \$500, problems in surgical shock

Grant 609 C E Cahn Bronner, University of Illinois College of Medicine, \$300, bacterial metabolism

Grant 610 H O Burdick Alfred University, Alfred, N Y, \$125, the effect of desoxy corticosterone acetate on pregnancy

M R Todd University of Oregon Medical School \$200, Grant 611 the physiologic effects of canine distemper vaccine

Roland K Meyer, University of Wisconsin \$500 unti Grant 612

hormones Grant 613 Robert W Virtue, University of Denver, \$200, formation

of cholic acid Grant 614 George Gomori, University of Chicago \$400, enzymes in

tissue sections Grant 615 Frederick M Allen, New York Medical College \$500,

reduced temperatures in surgery

Grant 616 Robert S Dow, University of Oregon Medical School, \$250 effects of clotting in cerebral veins

Grant 617 Mary Juhn University of Maryland College of Medicine, \$500, tests of applicability of feather germ reaction to tumor dragnosis Grant 618 H M Weiver, Wayne University College of Medicine, \$200, pain on distention of the stomach

Paul Thomas Young University of Illinois, \$500, appetites

and food preferences in the rat
Grant 620 T T Chen University of California, \$150, illustrations

of malarial parisites ant 621 William M. Cahill Wayne University College of Medicine, self selection of food in relation to tumor growth Grant 621

Tunothy Leary Medical Examiner's Office Boston \$75, illustrations for article on atherosclerosis Arch Path Grant 622 cost of extra 32 507 1941

### STATE OF WORK UNDER PREVIOUS GRANTS

### 1 COMPLETED DURING THE YEAR

Grant 410 1936 H E Eggers University of Schraska, \$200 effect of tetramethylarsonium gluconate on human cancer Figers H I On Specific Chemotherapy for Cancer, accepted for publication by the Schraska State Medical Journal

Grant 413, 1936 Philip Levine, Newark Beth Israel Hospital, Newark \ J \$350 becteriof hage action in the disentery group (refund \$153.60) Levine Philip and Perlstein Davil Phage Specific Heat Labile Lectors in B Disenterine Sonne Proc Soc Exper Biol & Med 36: 295 1937

Grant 463, 1937 Jay Conger Davis, Minneapolis, \$600 action of certain drugs on the coronary arteries (refund, \$50) Davis, J C Studies on Effect of Aminophyllin on Coronary Blood Flow, J. Clin Investigation 17: 511, 1938 See grant 356, 1935
Grant 498, 1938 Henry Laurens, Tulane University, \$351 50, lowering of arterial pressure by carbon are radiation See grant 541, 1939
Laurens, Henry, and von Kolnitz, Henry The Effects of Carbon Are Radiation on Blood Pressure and Blood Histamine W Rec 152: 209
(Sept 18) 1940 von Kolnitz, Henry Blood and Blood Pressure Changes Following Carbon and Irradiation, Am J Physiol 129: 399, 1940
Grant 499, 1938 Robert W Virtue, University of Denver, \$365, formation of bile acids Virtue, R W, and Doster Virtue, M E Studies on the Production of Taurocholic Acid in the Dog IV Cysteine, Homocysteine and Thioglycolic Acid, J Biol Chem 128: 665, 1939, The

Homocysteine and Thioglycolic Acid, J Biol Chem 128: 665, 1939, The Pailure of Intravenously Injected Fat to Produce Choic Acid in the Dog, ibid 133: 573, 1940

Grant 512, 1938 Barnes Woodhall, Duke University Hospital, \$350, reactions to implanted Shope rabbit papilloma by cerebral tissue (refund, \$102 48) Woodhall, Barnes, Graves, R. W., and Beard, J. W. Eyperi mental Production of Tumors of the Brain with the Shope Rabbit Papilloma, Arch Surg 38:457 (Murch) 1939 Woodhall, Barnes, and Graves, R W Production of Experimental Tumors of the Brain with the Shope Rabbit Papilloma II, ibid 39: 1041 (Dec ) 1939

Grant 524, 1938 Ernest A Spiegel, Temple University, \$300, physico chemical factors influencing the exitability of the central nervous system Spiegel, E. A. and Wycis, H. T. Influence of Hypochloremia on the Convulsire Reactivity, Proc. Soc. Exper. Bool. S. Med. 42: 400, 1939. Spiegel, E. A. and Spiegel Adolf, Mona Mechanism of the Therspeutic. Spiegel, E A and Spiegel Adolf, Mona Mechanism of the Theripeutic Effect of Metrazol and Insulin Convulsions, ibid 42:834, 1939 Spiegel E. A. Comparative Study of the Anticonvulsant Effects of Various Bromides, Arch internat de pharmacodyn et de therap 63:464, 1939 Spiegel, E A, and Wycis, H T Convulsive Reactivity in Hyper cholesteremia, Confinia Neurol 3:262, 1941 Spiegel, E A, and Spiegel Adolf, Mona Permeability Changes in the Brain Induced by Metrazol and Insulin Convulsions, J Nerv & Ment Dis 93:750, 1941 Spiegel, E A, and Wycis, H T Convulsive Reactivity in Hyper cholesteremia, Am J Physiol 133:458, 1941 Spiegel Adolf, Mona and Spiegel, E A Quantitative Relationship Between Polarizability and Permeability, Am J Physiol 133:459, 1941

Grant 531, 1939 L R Dragstedt and G M Dack, University of Chicago, \$600, Bacterium necrophorum (refund, \$41 37) Dack, G M,

Chicago, \$600, Bacterium necrophorum (refund, \$4137) Dack, G M, Kirsner, J B, and Dragstedt, L R Intradermal Injection of Bac terium Necrophorum in Patients with Chronic Ulcerative Colitis, J. Infect Dis 66: 263, 1940, Chronic Ulcerative Colitis, Ann Surg 114: 653, 1941

Grant 548, 1939 Warren O Nelson, Wayne University College of Medicine, \$300, relation of the thymus gland to growth and development Segaloff, Albert, and Nelson, W O. The Thymus Adrenal Relationship, Am J Physiol 128:475, 1940, Growth of Vitamin Deficient Rats The Thymus Adrenal Relationship, Treated with Thymocrescin, Endocrinology 26: 860, 1940, Growth and Development of Six Generations of Albino Rats Under Treatment with Thymocrescin, ibid 27: 693, 1940, Growth and Development of Six Generations of Thymectomized Albino Rats, Am J Physiol 130: 671, 1940 Segalof, Albert, and Nelson, W O Treatment of Successive Generations of Rats with Thymus Extract (Hanson) and Related Sub stances, Endocrinology 29: 483, 1941.

Saunders, Felix Effect of Nicotinamide on Respiration of Disentery Bacilli, Science 90: 2345, 1939 Koser, S A, Dorfman, Albert, and Saunders, Felix Pyridine Derivatives and Other Compounds as Growth Saunders, Feix Printine Derivatives and Uther Compounds as Growth Promoting Substances for Dysentery Bacilli, Proc Soc Exper Biol & Med 43:391, 1940 Dorfman, Albert, and others Quantitative Response of the Dysentery Bacillus to Nicotinamide and Related Compounds 43:434, 1940 Bass, A, Berkman, Sam, Saunders, Felix, and Koser, S A An Additional Growth Factor Needed by Some Hemolytic Streptococci, J Infect Dis 68:220, 1941 Bass, A, and others Growth Factors for Hemophilus Influenzae and Hemophilus Para influenzae, ibid 68: 175, 1941

Grant 563, 1939 Ben Vidgoff, University of Oregon Medical School, Grant 563, 1939 Ben Vidgoff, University of Oregon Medical School, \$300, isolation and effect of the inhibitory hormone of the testes on the endocrine glands (refund, \$8.99) Vidgoff, Ben, and Vehrs, Herman Studies on the Inhibitory Hormone of the Testes Endocrinology, 26: 656, 1940 See grant 486, 1938 (Report of Committee for 1939) Vidgoff, B, and Kubin, R Effects of Anterior Printary like Substance on Carbohydrate Metabolism Northwest Med 40: 361, 1941

Grant 564, 1939 Robert B Greenblatt, University of Georgia, \$400, influence of gonadotropic preparations on the human ovary Greenblatt, R B, and Torpin, R The Evaluation of the Various Gonadotropins R B, and Torpin, R Ine Evaluation of the Various Gonadotropins
Their Application to Female Endocrine Disorders, J M A Alabama
9:409, 1940 Greenblatt, R B, and Krafka, J Ruptured Human
Follicle with Osum in Situ, Arch Path 31:634 1941 Greenblatt,

Robert B Histologic Changes in the Ovary Following Gonadotropin Administration, Am J Obst & Gynec 42:983, 1941

Grant 565, 1939 Alexander S Wiener, Office of the Chief Medical Examiner, New York City, \$200, agglutinogens in human blood and the Kline test Wiener, A S, and Peters, H R Hemolytic Reactions Kline test Wiener, A S, and Peters, H R Hemolytic Reactions Kline test Wiener, A S, and Peters, H R Hemolytic Reactions Following Transfusions of Blood of the Homologous Group, with Three Following Transfusions of Blood of the Responsible, Ann Int Med Cases in Which the Same Agglutinogen Was Responsible, Ann Int Med Cases in Which the Same Agglutinogen Was Responsible, Ann Int Med Cases in Which the Same Aggiutinogen was Responsible, Ann Int Med 13:2306, 1940 Wiener, A. S., and Silverman, I. J. Subdivisions of Group A and Group AB, with Special Reference to the So-Called Asglu tinogen As, Am J. Clin Path 11:45, 1941. Candels. P. B. Wiener, tinogen As, and Goss, L. J. New Observations on the Blood Factors in Similar A. S., and Goss, L. J. New Observations on the Blood Factors in Similar and Cercopithecidae, Zoologica 25:513, 1940 Wiener, A. S. Hemolytic

Reactions Following Transfusions of Blood of the Homologous Group II Further Observations on the Role of Property Rh, Particularly in Cases Without Demonstrable Isoantibodies, Arch Path 32: 227, 1941

Grant 566 Robert S Dow, University of Oregon Medical School, \$300, vessels in lesions of multiple sclerosis (refund, \$2.35) Dow R S, and Berglund, George Vascular Pattern of the Lesions of Multiple Sclerosis, accepted for publication by Arch Neurol & Psychiat

Grant 568, 1940 Fritz Schiff, Beth Israel Hospital, New York \$400 serologic classification of Salmonella Schiff Fritz, and Saphra I Variety of Types in Human Paratyphoid C Infections, J Infect Dir 66: 97, 1940, A New Salmonella Type Salmonella Havana, ibid 68: 125, 1941

Grant 572 Committee on Fluoride Intoxication, University of Chicago \$750, bone changes due to fluoride intoxication (refund \$118 90) Hodges, P C, Fareed, O J, Rugg, George, and Chudnoff, J S Skeletal Sclerosis in Chronic Sodium Fluoride Poisoning, J A M A 117:1938, 1941

Grant 573, 1940 Louis N Katz, Michael Reese Hospital, Chicago \$250, factors influencing activities of the heart Katz, L N Observations on Cardiac Failure and the Mode of Its Production, Publication 13 of American Association for the Advancement of Science, p 184

Grant 575, 1940 Doran J Stephens, University of Rochester, \$400 changes in the thyroid gland of undernourished guinea pigs Stephens D J, and Belasco, I J Effect of Undernutrition on Thyroid Tissue Respiration of Guinea Pig, Proc Soc Exper Biol & Med 45:706 1940

Grant 578, 1940 L G Meduna, Francis Gerty and V. G Urse Los ola University, Chicago, \$500 biochemical phenomena in schizophrenia Meduna, L. G., Gerty, F. J., and Urse, V. G.: Biochemical Disturbances in Mental Disorders I Anti Insulin Effect of Blood in Schizophrenia

accepted for publication by Arch Neurol & Psychiat
Grant 580, 1940 Lawrence W Smith, Temple University, \$480 Grant 580, 1940 Lawrence W Smith, Temple University, \$480 'critical' temperature levels of various neoplastic diseases Smith L. W The Effect of Lowered Temperatures on the Growth of the Fibroblast in Vitro Its Application to Wound Healing, Lab & Clin Med. to be published, The Behavior of Tumor Cells in Tissue Culture Subjected to Reduced Temperatures, accepted for publication by Cancer Research

Grant 581, 1940 Charles G Johnston Wayne University, \$285 intes tinal obstruction Johnston, C G Decompression in the Treatment of Intestinal Obstruction, Surg, Grace & Obst 70: 365, 1940 Penberthy, G C Noer, R J, and Benson, C D Treatment of Adynamic Heiss by Gastro Intestinal Intubation in Children, ibid 71: 211, 1940 Penberthy, G C, Irvin, J L, and Tenery, R M Flind, Salt and Nutritical Balance in Patients with Intestinal Suction Drainage, Ann Surg 112:530, 1940 See Grant 491 (1938) in the report of the committee for 1940

Grant 586 1940 Herman Kabat, University of Minnesota, \$300 nervous component in traumatic shock Salzburg, P and Kabat, Herman Differential Sensitivity of Sarcoma and Normal Tissues to Temporary Arrest of Circulation, Arch Surg 42:917, 1941 Kabat Herman and Freedman, A M Effect of Slowl, Absorbed Epinephrine in Experimental Shock, Proc Soc Exper Biol & Med 46: 385, 1941 Kabat Herman, and Hedin, R F The Nervous Factor in Burns bid 49: 114, 1942, Nervous and Toxic Factors in the Etiology of Shock in Burns ibid, to be published

Grant 587, 1940 Charles F Code, University of Minnesota \$100 action of intramuscular injection of desoxy corticosterone and epinephrine in a sellow wax (U S P) mixture Code, C F, and others Pro-longed Action of Desoxycorticosterone Acetate, Am J Physiol 133: 240, 1941

Grant 588, 1940 Owen H Wangensteen University of Minnesota \$450 physiologic basis of surgical treatment of duodenal and gastric ulcers Wangensteen O H Physiological and Surgical Critique of the Surgeon's Role in the Management of Ulcer (Duodenal and Gastre).

Bulletin of Minnesota Medical Foundation, November 1940, The Problem of Surgical Arrest of Massive Hemorrhage in Duodenal Ulcer, Surgert 8: 275, 1940, Aseptic Resections in the Gastrointestinal Tract Surg Ginec & Obst 72: 257, 1941

Grant 589 1940 Rucker Cleveland Vanderbilt University, \$400 his tology and cytology of endometrium (refund, \$84.96) Cleveland, Ruel er Cytologic and Histologic Observations on the Epithelial, Connective and Vascular Tissues of the Endometrium of Macaques Under Various Experimental Conditions, Endocrinology 28.388, 1941, Experimental Production of Glandular Cystic Hyperplasia in Castrated Macaques, ibid p. 639, Observations of Macaques, Contacted Macaques, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production of Contacted Macaques, 1961, Production Observations in Hormone Withdrawal Bleeding in Castrated Vacaques ibid 29:343, 1941 See also grant 521, 1938 (report of committee for

Grant 598 1940 Siegbert Bornstein, Beth Israel Hospital New York \$350, epidemiology and serology of American Salmonella Schiff, F Bornstein, S., and Saphra, I Occurrence of Salmonella O Antigens in Coliform Antigens, J. Immunol. 40: 365, 1940. Bornstein S., Saphra I. and Strauss L. Frequency of Occurrence of Salmonella Species I. Infect. Dis. 69: 59, 1940. Bornstein, S. Saphra I. and Daniels. J. B. The Occurrence of Salmonella Antigens in Dysentery Bacilla, J. Immurci. 42: 401, 1941.

42:401, 1941
Grant 592 1940 Wesley W Spink, University of Minresola \$122, antistaphylococcic immunity and nutrition of staphylococci. Spink W W. and Jermsta, J Effect of Sulfonamide Compounds on Growth of Staphylococci in Presence and Absence of p Aminoberroic Acid, Prosoc Exper Biol & Wed 47:395, 1941
Grant 622 1941 Timothy Leary, Office of Medical Examirer, Bos 75, illustrations for article on atherosclerosis. See grant 471 1947
Leary, Timothy The Genesis of Atherosclerosis, Arch Path 22:607, 1941

#### 2 INCOMPLETE-WORK IN PROGRESS

J Lisle Willams, Rush Medical College, Chicago, Grant 254, 1932 \$200, decreased dextrose tolerance in acute infectious diseases

Lay Martin, Johns Hopkins University, \$150, gastric Grant 310, 1934 juice See grant 462, 1937

Grant 355, 1935 Royall M Calder, San Antonio, Texas, \$150, mech anism of pneumococcic inflammation

Grant 441, 1937 Edward S West and G E Burget, University of Oregon Medical School \$350, diurette action and chemical metabolism of sorbitol Todd, W R, Myers, J, and West, E S On the Metabolism of Sorbitol and Mannitol, J Biol Chem 127: 275, 1939

Grant 445, 1937 Paul M Levin, Johns Hopkins University, \$250, cerebral efferent tracts in primites Levin, P M A Nervous Structure in the Pineal Body of the Monkey, J Comp Neurol 68: 405, 1938 Levin, P M, and Bradford, F K The Exact Origin of the Corticospinal Tract in the Monkey, ibid 68: 411, 1938

Grant 462, 1937 Lay Martin, Johns Hopkins University, \$200, gastric juice See grant 310, 1934

Grant 474, 1937 Marion Fay, Woman's Medical College of Pennsyl vania, \$275, biochemistry of strontium See grant 552, 1939

Grant 479, 1937 Tracy J Putnam, Boston City Hospital, \$200, injuries to the cervical portion of the cord

Grant 480, 1937 Amy L Daniels, State University of Iowa, \$350, relation of fluorine to physiologic function

Grant 481, 1937 Warren O Nelson, Wayne University College of Medicine, \$200, synthetic androgenic substances
Grant 503, 1938 R C Robb, Syracuse University College of Medicine,

\$800, diseases in twins

Grant 504, 1938 Wallace M Yater, Georgetown University Medical School, \$500, histopathology of "bundle branch" block

Grant 510, 1938 Erma A Smith, Iowa State College, \$150, influence of various substances on gastrointestinal motility Smith, Erma A, and Penrod, K E Gastrointestinal Motility in the Albino Rat After Admin istration of Amphetamine Sulfate, Proc Soc Exper Biol & Med 47: 418, 1941

Grant 518, 1938 Harold D West, Meharry Medical College, \$100, synthesis of dl threonine See grant 559, 1939

Grant 522, 1938 Ludwig A Emge, Stanford University School of

Medicine, \$500, relation of sex hormones to tumor growth Grant 527, 1938 Alexander Levy, University of Oregon Medical School, \$300, occlusion of the coronary arteries See grant 577, 1940

Grant 532, 1939 Walter Schiller, Cook County Hospital, Chicago \$200, ovariun tumors Schiller, Walter Liver Cell Fat Necrosis Caused by Pancreatic Reflux, Surg, Ginec & Obst 72:70, 1941

Grant 533, 1939 Hardy A Kemp and W M Fisher, Baylor Uni versity, \$500, venom of southern and southwestern scorpions

Grant 536, 1939 Catharine Macfarlane, Woman's Medical College of Pennsylvania, \$1,900, value of periodic pelvic examination in detecting cancer of the uterus See grant 494, 1938 Macfarlane, Catharine, Fetterman, Faith S, and Sturgis, Margaret C. Report of an Experiment in the Control of Cancer of the Uterus, Quart Rev., New York City Cancer Committee, 1941 Macfarlane, Catharine Progress Report on Experiment in Control of Cancer of the Uterus, Connecticut State M J 5:814, 1941 Macfarlane, Catharine Cervix, M. Woman's J., July 1941 Grant 539, 1939 Albert V. Hardy, Columbia University, \$500 Shigella dysenteriae Hardy, A. V. The Mouse Mucin Test in the

Study of Shigella, to be published

Grant 541, 1939 Henry Laurens, Tulane University, \$350, lowering of arternal pressure by curbon are radiation. See grant 498, 1938. Liurens, Henry, and Graham, J. S. The Influence of the Pressure Lowering Effect of Carbon Arc Radiation, M Rec 154: 146, 1941

Grant 542, 1939 Kendall B Corbin, University of Tennessec, \$200, alterations in the hip after deafferentation

Grunt 552, 1939 Mirton Fay, Woman's Medical College of Penn sylvania, \$250, biochemistry of strontium See grant 474, 1937 Grant 557, 1939 W D Armstrong, University of Minnesota, \$500,

calcification of bone in vitro

Grant 559. 1939 Harold D West, Meharry Medical College, \$50,

synthesis of dl threonine See grant 518, 1938
Grunt 560, 1939 B S Kline and H P Lankelma Western Reserve University, \$500, chemical study of antigens Wellman, J. W., and Lankelma, H. P. Purification of the Antigen of Syphiles, Pen Dis Inform 22:12, 1941

Grant 562, 1939 Joseph H Roe, George Washington University, \$350 vitimin C requirements of man Kuether, Carl A, and Roe, J H Determination of Ascorbic Acid in Whole Blood Proc Soc Exper Biol & Med 47: 467, 1941 Roe, J H, Hall, J M, and Dyer, H M Relation of Autrition to Gastric Function II The Effect of Vitamin C

Relation of Autrition to Gristric Function 11 The Effect of Vitamin C Deficiency Am J Digest Dis 8-261, 1941
Grant 567, 1940 Armand J Quick, Marquette University, \$275, conversion of prothrombin to thrombin Quick, A J Prothrombin Conventration of the Blood in Various Species, Am J Physiol 132:239
1941 Prothrombin Level of Blood After Intramuscular Injection of Sodium Citrate, Proc Soc Exper Biol & Med 47:1, 1941
Grant 570, 1940 William H Sweet, University of Chicago \$300,

course of nerve fiber tracts of the temporal lobe
Grant 571 1940 Joseph T king, University of Minnesota \$280,

antagonistic effect of tissues on the action of sulfanilamide

Grant 574, 1940 A G Enton I ouisinn State University, \$100 alsorption and metabolism of amino acids Eaton \ G, and Dots, J R The Heat Production and Blood and University After Administration of 1(-) Histidine to the Dog, I \u221dutrition 21: 25, 1941

Grant 576, 1940 Edward S West, University of Oregon Medical School \$250, solution of vesical calculi

Grant 577, 1940 Alexander H Levy, University of Oregon Medical School, \$200, collateral circulation for coronary occlusion

Grant 579, 1940 Harry C Rolnick, Michael Reese Hospital, Chicago \$200, effect of trauma on the response of the kidney to sudden blockage Grant 582, 1940 Charles W Greene, Stanford University, \$500, physiology of the coronary system in monkeys

Grant 583, 1940 Ulrich Friedemann, Jewish Hospital of Brooklyn, \$300, genesis of tetanus Friedemann, Ulrich; Hollander, A, and Tarlov, I M Investigations of the Pathogenesis of Tetanus III, J Immunol 40: 325, 1941

Grant 584, 1940 Oscar V Batson, University of Pennsylvania \$200, ny stagmus

Grant 585, 1940 Howard Curl, University of Tennessee, \$400 roent genologic study of the normal gallbladder

Grant 590, 1940 David Polowe, Paterson, N J, \$150, pancreatic inction test See grant 597, 1940
Grant 591, 1940 Percival Bailey, University of Illinois \$500 effects function test

of electrolytic lesions in the periaqueductal gray matter of the Macacus monkey

Grant 593 1940 A M Lassek, Medical College of the State of South Carolina, \$300, origin of the pyramidal tract in the monkey of Pre and Postcentral Cortical Ablations on the Tibers of the Pyramids in Monkeys, J Nert & Ment Dis, to be published
Grant 594, 1940 I L Chaikoff, University of California \$350,

phospholipid metabolism and blood regeneration as measured by radio active phosphorus

Grant 595, 1940 Arthur C Allen, Mount Smai Hospital, New York,

\$250, effect of chemicals on vegetations of experimental endocarditis Grant 596, 1940 Israel Davidsolin, Mount Sinai Hospital, Chicago, \$400, bacteriogenic hemagglutination

Grant 597, 1940 David Polowe, Paterson, N J, \$100, proceeding function test See grant 590, 1940

#### WORK STOPPED, NO RESULT PUBLISHED 3

Grant 547, 1939 Max T Schnitker, Toledo Hospital, Toledo Obio, \$300, Berger rhythm determinations following cerebral trauma (refund, The work was stopped for the time being on account of technical

Grant 602, 1941 Doran J Stephens, University of Rochester, \$400, changes in the thyroid gland of undernourished guinea pigs (refund, \$371.34)) The grantee died on March 19. 1941. See grant 575, 1940

### Report of Committee on Therapeutic Research

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research

During the year 1941 the committee issued thirty new grants A detailed list of these grants, a list of publications during 1941, and a list of unexpired grants made before Jan 1, 1941 are included in this report

The following is a list of the investigations conducted with the assistance of grants made by the Committee on Therapeutic Research, reports of which were published during 1941.

Optimal NaCl Concentration for Oral Saline Diuresis, Julius M Coon, R O Noojin and Carl Pfeister Am J Physiol 134: 723 (Nov.) 1941. An Experimentally Derived Method for Determining the Degree of Infection in Avian Malaria, Harry Beckman Am J Trop Med 21: 151 (Jan.) 1941.

The Cause of Death in Experimental Anuria, Hebbel E. Hoff, Paul K. Smith and Alexander W. Winkler J. Chin. Investigation 20: 607 (Nov.)

Toxicity of Potassium in Adrenalectomized Dogs, A. W. Winkler, H. I.

Toxicity of Potassium in Adrenalectomized Dogs, A W Winkler, H I Hoff and P K Smith Am J Physiol 133: 494 (June) 1941

The Cause of Death in Experimental Amuria, H E Hoff, P K Smith and A W Winkler Am J Physiol 133: 331 (June) 1941

Recovery of Latigued Muscle Lollowing Intractions Injection of Potassium Chloride, Hebbel E Hoff, Alexander W Winkler and Paul K Smith Am J Physiol 131: 615 (Jan.) 1941

The Toxicity of Orally Administered Potassium Salts in Renal Insufficiency, A W Winkler, H E Hoff and P K Smith J Clin In estigation 20: 119 (March) 1941

Lactogenic Hormone Extraction and Assay of Lactogenic Hormone in Postpartum Urine, Joseph Meites and C W Turner J. Clin Endo.

Lactogenic Hormone Extraction and Assay of Lactogenic Hormone in Postpartum Urine, Joseph Meites and C W Turner 1. Clin Endocrinol 1:918 (Nov.) 1941

crinol 1:918 (Nov.) 1941

Does Pregnancy Suppress the Lactogenic Hormone of the Pittutary?

C. W. Turner and Joseph Meites. Endocrinology. 20:165 (Aug.) 1941

Relation of Size of Litter to AP Lactogen Content of Nursing Rabbits.

J. Meites, A. J. Bergman and C. W. Turner. Proc. Soc. Exper. Biol.

& Med. 46:670, 1941

Comparison of Assay. Methods. Using International Standard Lactogen.

J. Meites, A. J. Bergman and C. W. Turner. Endocrinology. 28:707.

(Max.) 1941

J Meites ." (May) 1941

The Rehability of the Cobalt Isopropylamine Color Reaction for Ametal The Evaluation of Chromogenic Substances in Urine, R. I. Krause and Richard F. Riley. J. Plannacel & Ixper Therap. 71: 267 (March)

Blood Sugar and Liver Glycogen Repeated Doses of Sulfonamide Drugs, Roberta Hafkesbring, Esther M Greisheimer and Grace E Wertenberger Medical Times, November

III Blood pH and the Sulfonamides, Grace E Wertenberger cal Times, November 1941

NaCl and Peritoneal Absorption and Renal Excretion of Glucose in Normal and Peritoneal Absorption and Renal Excretion of Glucose in Normal and Diabetic Rats, George Sayers and James M Orten Proc Soc Exper Biol & Med 46: 287, 1941

The Electrocardiogram in Acute Emetine Intoxication, Linn J Boyd and David Scherf J Pharmacol & Exper Therap 71: 362 (April)

Factors Influencing the Conjugation of Sulfapyridine, B K Harned V V Cole J Biol Chem 140: hii (July) 1941

The Relative Responses of the Dorsal Metacarpal Digital and Terminal

Skin Arteries of the Hand in Vasoconstrictor Reflexes, Alrick B Hertz

The Relative Responses of the Dorsal Metacarpal Digital and Terminal Skin Arteries of the Hand in Vasoconstrictor Reflexes, Alrick B Hertz man Am J Physiol 134:59 (Aug) 1941

Use of Colchicine in Detecting Hormonal Effects on Vaginal Epithelium of Menstruating and Castrate Women Ephraim Shorr and Eugene J Cohen Proc Soc Exper Biol & Med 46:330, 1941

The Effect of Histamine on the Pulmonary Blood Pressure of Various Animals With and Without Anesthesia, R A Woodbury and W I The Effect of Convulsive Doses of Metrazol on Blood Pressure As Employed Therapeutically, During Spinal Anesthesia and During Asthenia, from Curare, R A Woodbury, H M Cleckley, Perry P Volpitto and W F Hamilton Am J Physiol 133:498 (June) 1941

The Effect of Metrazol on the Blood Pressure of Man and Dog, R A Woodbury, W F Hamilton, H M Cleckley and Perry P Volpitto I Pharmacol & Exper Therap 73:431 (Dec) 1941

Effect of Pentothal Sodium on Urine Output Under Various Experimental Conditions Herbert Silvette J Pharmacol & Exper Therap 72:37 (May) 1941

Acquired Tolerance to Small Doses of Postpituitary Extract, Herbert Silvette and C N Psimas Am J Physiol 133:447 (June) 1941

The Effect of Various Agents on Blood Coagulation Time in Dogs, Therap 73:146 (Oct) 1941

Recovery After Sulfonamide Drugs, Roberta Hafkesbring and Esther M Greisheimer Am J Physiol 133:31310 (June) 1941

Recovery After Sulfonamide Drugs, Roberta Hafkesbring and Esther M Greisheimer Am J Physiol 133:31310 (June) 1941

Pu Changes in the Blood Following Sulfapyridine and Sulfathiazole Administration, Grace E Wertenberger Am J Physiol 133:488 (June) 1941

A Classification of the Causes of Hypoleydigism, Fuller Albright, Ann

Forbes, Russell Fraser, Bretney Miller and Edward C Reifenstein

A New Microrespirometer for Nerve, P W Davies and Frank Brink A New Microrespirometer for Nerve, P W Davies and Frank Brink F Am J Physiol 133:257 (June) 1941
Chemical Control of Respiration and Activity in Peripheral Nerve W Bronk, Frank Brink Jr and P W Davies Am J Physiol

D W Bronk, Frank Brink Jr and P W Davies Am J Physiol 133: 224 (June) 1941
Chemical Initiation of Rhythmic Local Responses in Nerve Preceding Trains of Propagated Impulses Frank Brink Jr and D W Bronk Am J Physiol 133: 222 (June) 1941
The Ionic Permeability (Electrical Conductance) of the Sensitized Nictitating Membrane of the Cat, Rose Marrazzi and Amedeo S Marrazzi Am J Physiol 133: 377 (June) 1941
Correlation Between Structure and the Ratio of Inhibitory to Pressor Activity of Sympathomimetic Amines, Amedeo S Marrazzi J Pharma col & Exper Therap 72: 28 (Max) 1941
Coronary Reflex Dilatations Accompanying Contractions of Voluntary Muscles, Charles W Greene Am J Physiol 132: 321 (March) 1941
Chinical and Experimental Studies on Paradlehyde, Meyer Bodansky Julius Luther Jinkins Harry Levine and Albert Joseph Gilbert Anex thessology 2: 20 (Jan) 1941

Julius Luther Jinkins Harry Levine and Albert Joseph Gilbert Ancs thesiology 2:20 (Jan) 1941

Resistance to Slowly Increasing Doses of Sodium Pentobarbital in the White Rat Duration of Higher Tolerance After Parturition and Effects of Age, Sex, Castration and Administration of Testosterone Propionate Harald G O Holck and Donald R Mathieson Am J Physiol 133. 332 (June) 1941

Mammary Growth in Hypophysectomized Male Mice Receiving Estrogen and Prolactin, W U Gardner and Abraham White Proc Soc Exper Biol & Med 48:590, 1941

The Absorption and Fate of Free Citric Acid in the Rat, Carl A Kuether and Arthur H Smith J Biol Chem 137:647 (Feb.) 1941

Effects of Estrone and Progesterone on Male Rabbit Mammary Glands I Varying Doses of Progesterone, William R Lyons and Daniel A McGinty Proc Soc Exper Biol & Med 48:83, 1941

Effects of Estrone and Progesterone on Male Rabbit Mammary Glands I Gentle Strone and Progesterone on Male Rabbit Mammary Glands I Varying Doses of Estrone, George Scharf and William R Lyons

Effects of Estrone and Progesterone on Male Rabbit Mammary Glands II Varying Doses of Estrone, George Scharf and William R Lyons Proc Soc Erper, Biol & Med 48:83, 1941

Mammahan and Avian Assays of Hypophysial Lactogenic Preparations William R Lyons Endocrinology 28:161 (Ieb) 1941

Tissue Hydration During Morphine Addiction and Withdrawal in Rats on Low Calcium Diet and on High Calcium Diet with Parathyroid Hormone Injections, Lawrence E Detrick and C H Thenes Archinternat de pharmacodyn et de therap 66:130 (July 31) 1941

Cardiac Output in Coronary Occlusion Studied by the Wezler Boeger Physical Method, Arthur Grishman and Arthur M Master Proc Soc Exper Biol & Med 48:207, 1941

Blood Sugar and Liver Glycogen After Single Doses of Sulfanilamide Sodium Sulfappridine and Sodium Sulfathiazole Esther M Greisbeimer Roberta Hafkesbring and Hulda Magalhaes Medical Times 69:170 (April) 1941

(April) 1941

Quantitative Effects of Implantation of Cattle Anterior Pituitar, Powder on Gonads of Immature Rat, Robert H Shuler Proc Soc Exper Biol

The Clinical Pathological Correlation of Neurosyphilis, Hyman S Rubinstein Urol & Cuton Rev. 45.255 (April) 1941

Bromine and the Thyroid, Emil J Baumann, David B Sprinson and David Marine Endocrinology 28:793 (Max) 1941 David Marine

The Effects of Nitrites and Nanthines on Coronary Inflow and Blood Pressure in Anesthetized Dogs, Norman H Boyer and Harold D Green

Am Heart J 21: 199 (Feb.) 1941

The Effect of Sodium Nitrite on the Emptying Time of the Normal Human Stomach, Clarck k Sleeth and Edward J Van Liere Arch internat de pharmacodyn et de therap 65:5 (Jan) 15) 1941

The Effect of Testosterone Propionate on the Rat Testis H S Rubin Stein and A A Kurland Endocrinology 28: 495 (March) 1941

Further Study of Central Stimulation from Sympathomizette Anines, Tainter J Phormacol & Exper Therap 71.62 (Jan) 1941

The Mechanics of Gastric Evacuation J M Werle, D A Brody, E W (Jan) 1941

Ligon Jr., M R Read and J P Quigley Am J Physiol 131,606

Ascorbic Acid and Arsphenamine Dermatitis Frank M McDonald and Herbert H Johnson Arch Dermat & Syph 43:682 (April) 1941
Studies on the Inactivation of Diphtheria Toxin by Vitamin C (I Ascorbic Acid) Claus W Jungeblut J Infect Dis 69:70 (July Aug ) 1941

Effect of Sulfapyridine on Staphylococcus Toxin R H Rigdon, Anne Haynes and Alys Lipscomb J Lab & Clin Med 26 1111 (April)

Serum Therap, of Tetanus, Ralph Spaeth Am J Dis Child 61. 1146 (June) 1941

146 (June) 1941

Estrin Potency and Basal Metabolism Mary E Collett Faith W Reed chelle Isaac Sylvia Rouse and Eleanor Yeakel Am J Obit & Acute Fatal Insulin Poisoning Fugene L Jackson J Pharmacol & Creen Tree 72-21 (Maj) 1941

The Effects of Benzedrine Coramine Metrazol and Picrotoxin on Body Compensative and Caseous Matabolism in Palbuse Danages he Alapholem.

Temperature and Gaseous Metabolism in Rabbits Depressed by Alcohol Harold W Werner J Pharmacol & Exper Therap 72:45 (May)

The following grants were issued before Jan 1, 1941. In some cases the grant has expired and an unexpended balance remains, or the work is not jet completed or not jet published

Grant 164 E L Jackson associate professor of pharmacology, Emory University School of Medicine \$200, to investigate the intagonism between sodium barbital and insulin.

Grant 221 John G Reinhold, Department of Public Health Phila delphia General Hospital, \$250, to investigate the action of aminoacetic

despita General Hospital, \$250, to investigate the action of aminoactive acid (glycine) in progressive muscular distrophy
Grant 232 George R Cowgill, associate professor of physiologic chemistry, Yale University School of Medicine, \$250, to investigate the heart in vitamin B deficiency

heart in vitamin B denciency
Grant 238 Roy R Kracke, professor of pathology, Emory University
School of Medicine \$250, to investigate the effect of the oxidation products of aminopyrine and related drugs on the leukocyte counts of

Grant 248 Fred C Koch chairman of the Department of Physiological Chemistry and Pharmacology, University of Chicago, \$250 to

logical Chemistry and Pharmacology, University of Unicago, \$230 in investigate the male sex hormone

Grant 263 H A Shoemaker associate professor of biochemistry and pharmacology, C E Clymer, professor of clinical surgery and Henry H Turner, University of Oklahoma School of Medicine, \$150, to investigate the blood cholesterol and iodine value in thyroid disease and their alterations.

Grant 264 Detlet W Bronk, Johnson professor of biophysics Uni

Grant 264 Detlet W Bronk, Johnson professor of biophysics University of Pennsylvania School of Medicine \$200, to investigate the action of various drugs on the autonomic centers

Grant 280 John P Peters professor of medicine, Yale University School of Medicine \$200 to investigate by means of intravenous pyelog raphy the state of ureters and kidneys in a large series of patients after delivery and subsidence of acute signs of tovernia

Grant 297 Melvin Dresbach, Harvard University School of Medicine, \$250, to investigate the emetic effect of some of the digitalis bodies

\$250, to investigate the emetic effect of some of the digitals bodies Grant 305 Beverly Douglas, assistant dean and associate pro-

Grant 305 Beverly Douglas, assistant dean and associate professor of Surgery, Vanderbilt University School of Medicine, \$250, to meet gate the pneumatic (transparent rubber jacket) system of treating extensive wounds

Grant 306 Edwards A Park professor of pediatrics Johns Hopkins the effect of solution of parathyroid on the circulation of the bone Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant and Grant 311 Clarence P Berg assistant 311 Clar

Grant 314 C C Koch, chairman, Department of Physiological Chemistry and Pharmacology, University of Chicago \$250, to investigate ammo acids stry and Pharmacology, University of Chicago \$250, to investigate pro-

Grant 333 Owen S Gibbs, former chief of Pharmacological Division University of Tennessee College of Medicine, \$180, to investigate the toxicity of morphine and scopolamine on rats

Grant 355 Peter K Knoefel associate professor of pharmacology University of Louisville School of Medicine, \$150 to investigate the action of the amines, of the epinephrine series and of related substances on the central nervous system

Grant 356 John B Lagen, research associate in medicine, University of California Medical School, \$150 to investigate the potassium and sodium ions in the blood of asthmatic patients and in anxiety states Grant 362 James M Orten, assistant professor of physiologic clemistry. Wayne University College of Medicine, \$150, to investigate the effect of copper and certain other inorganic salts on the hypoglycemic activity of insulin. Grant 367 Simon Benson former dean of pharmacy, Ferris Institute \$100, to investigate the therefore the first of this complexity that is

activity of insulin
Grant 367 Simon Benson former dean of pharmacy, Ferris Institute
\$100 to investigate the therapeutic effects of skin counterirritants
Grant 370 Harald G O Holek associate professor of pharmacolory
University of Vehraska College of Pharmacy, \$250, to investigate the
possible effect of aging on the strength of digitalis preparations

Grant 375: Joseph Seifter, Department of Pharmacology, Western Reserve University School of Medicine, \$250, to investigate the pharmacology of metal alkyls.

VOLUME 118 NUMBER 17

Grant 376: R. W. Gerard, professor of physiology, the University of Chicago, \$200, to investigate the therapeutic effect of pyocyanin in schizophrenia.

Grant 391: A. R. McIntyre, professor of physiology and pharmacology, the University of Nebraska College of Medicine, \$100, to investigate outsain and cardiac muscle and metabolism.

Grant 392: Arthur H. Smith, chairman of the Department of Physiological Chemistry, Wayne University College of Medicine, \$200, to investigate the rate of absorption of citric acid and citrates from the intestine, and the relative significance of these compounds as precursors of liver glycogen.

Grant 393: Arnold De M. Welch, formerly of the Department of Pharmacology, Washington University School of Medicine, \$300, to investigate the lipotropic activity of choline, betaine and their derivatives.

Grant 395: R. W. Whitehead, professor of physiology and pharma-cology, University of Colorado School of Medicine and Hospitals, \$150, to investigate the influence of electrolytes in anaphylaxis.

Grant 403: Erwin E. Nelson, professor of pharmacology, Tulane University School of Medicine, \$100, to investigate pituitary extracts.

Grant 404: Carl Pfeiffer, Department of Pharmacology, Wayne University College of Medicine, \$300, to investigate caffeine withdrawal

Grant 405: A. C. Ivy, Department of Physiology, Northwestern University Medical School, \$225, to investigate the effect of gastrectomy on the monkey.

Grant 406: John C. Krantz Jr., professor of pharmacology, University of Maryland, \$250, to investigate the action of the nitrites.

Grant 408: Ephraim Shorr, assistant professor of medicine, Cornell University Medical College, \$300, to investigate the effect of progesterone on the vaginal smear.

Grant 409: Reinhard Beutner, professor of pharmacology, Hahnemann Medical College and Hospital, Philadelphia, \$200, to investigate the toxicity and detoxification of local anesthetics.

Grant 411: Linn J. Boyd, professor of pharmacology, New York Medical College, \$300, to investigate the effects of hypnotics on mercurial

Grant 412: Anne Forbes, Massachusetts General Hospital, Boston, \$40\text{\$\text{\$\text{\$\grace}\$}}, to investigate the effect of various endocrine diseases and the administration of various endocrine products on the 17-keto-steroid secretion in the urine.

Grant 413: Claude E. Forkner, New York Hospital, Department of Medicine, \$300, to investigate bronchiectasis, etiology and treatment.

Grant 415: B. K. Harned, professor of pharmacology, and V. V. Cole, assistant professor of pharmacology, Woman's Medical College of Pennsylvania, \$300, to investigate the effects of sulfanilamide and sulfapyridine on hepatic function.

Grant 416: Africk B. Hertzman, associate professor of physiology, St. Louis University School of Medicine, \$500, to investigate peripheral circulation.

Grant 417: H. E. Hoff, assistant professor of physiology, A. W. Winkler, instructor in medicine, and P. K. Smith, research assistant in pharmacology and toxicology, Yale University School of Medicine, \$250, to investigate the action of ions.

Grant 419: Thomas H. McGavack, New York Medical College, \$300, to investigate the action of lipocaic and pancreatic extracts.

Grant 420: Lester M. Morrison, Temple University Medical School and Hospital, \$300, to investigate the effect of sulfanilamide on infections of the gallbladder.

Grant 421: Herbert Silvette, assistant professor of pharmacology, University of Virginia Medical School, \$250, to investigate the effects of the

antidiurctic hormone of the posterior pituitary gland.
Grant 422: Charles W. Turner, professor of dairy husbandry, University of Missouri College of Agriculture, \$500, to investigate the action of lactogenic hormone in cases of deficient lactation.

Grant 423: Treat B. Johnson, professor of organic chemistry, Yale University School of Medicine, \$250, to investigate pyrimidines.

Grant 426: J. P. Quigley, Department of Physiology, Western Reserve University School of Medicine, \$250, to investigate the mechanism of pylorospasm.

Grant 428: Milton Kissin, Beth Israel Hospital, New York, \$50, to investigate the influence of aminophylline among cardiac patients.

Grant 429: John A. Vaichulis, Loyola University School of Medicine, \$300, to investigate the separation of the pressor and oxytocic fractions from the pituitary gland.

Grant 430: J. P. Simonds, Department of Pathology, Northwestern University Medical School, \$100, to investigate the selective action of different types of poisons on the kidneys.

Grant 431: Meyer Bodansky, professor of pathologic chemistry, University of Texas School of Medicine, \$200, to investigate the metabolism

and pharmacology of paraldehyde.

Grant 433: Harry Beckman, professor of pharmacology, Marquette University School of Medicine, \$250, to investigate the prophylaxis of malaria.

Grant 434: William R. Lyons, Division of Anatomy, University of California Medical School, \$200, to investigate lactogenic hormones.

During 1941 the following grants were made:

Grant 436: Richard C. de Bodo, associate professor of pharmacology, New York University College of Medicine, \$350, to investigate the anti-

duretic action of the narcotics.

Grant 437: M. L. Tainter, professor of pharmacology, Stanford University School of Medicine, \$250, to investigate sympathomimetic amines.

Grant 438: George L. Maison, assistant professor of physiology, Wayne University College of Medicine, \$200, to investigate the effect of certain drugs on the strength of skeletal muscle.

Grant 439: H. N. Cole, clinical professor of dermatology and syphilology, Western Reserve University School of Medicine, \$45.60, to investigate the effect of the administration of gold sodium thiosulfate.

Grant 440: W. E. Hambourger, assistant professor of pharmacology, Western Reserve University School of Medicine, \$100, to investigate the action of drugs on the central nervous system.

Grant 441: Harald G. O. Holck, associate professor of pharmacology, University of Nebraska College of Pharmacy, \$150, to investigate the relation of sex to drug action.

Grant 442: Morton McCutcheon, associate professor of pathology, University of Pennsylvania School of Medicine, \$150, to investigate cellular locomotion.

Grant 443: A. B. Baker, assistant professor of neuropsychiatry and neuropathology, and Raymond N. Bieter, professor of pharmacology, University of Minnesota Medical School, \$500, to investigate toxic effects of sulfanilamide and derivatives on nervous system and effect of vitamin B complex in prevention of such injuries.

Grant 445: Paul L. Day, professor of physiologic chemistry, and John R. Totter, instructor in physiologic chemistry, University of Arkansas School of Medicine, \$300, to investigate ocular manifestations of tryptophan deficiency.

Grant 446: Carl A. Dragstedt, professor of pharmacology, Northwestern University Medical School, \$100, to investigate the effect of heparin on anaphylactic and related phenomena.

Grant 447: W. F. Hamilton, professor of pharmacology and physiology, University of Georgia School of Medicine, \$125, to investigate blood pressure responses in normal and anesthetized animals.

Grant 448: Victor G. Haury, associate professor of pharmacology, Jefferson Medical College of Philadelphia, \$250, to investigate the pharmacologic and physiologic behavior of magnesium, calcium and potassium.

Grant 449: Alrick B. Hertzman, professor of physiology, St. Louis University School of Medicine, \$500, to investigate peripheral circulation. Grant 450: Linn J. Boyd, professor of pharmacology, and David

Scherf, associate clinical professor of medicine, New York Medical College, \$50, to investigate the effect of strophanthin in paroxysmal tachy-

Grant 451: W. J. MacNeal, director of the Laboratories of Bacteriology, New York Post-Graduate Medical School and Hospital, \$400, to investigate therapy of experimental viridans endocarditis.

Grant 452: W. J. MacNeal, director of the Laboratories of Bacteriology, New York Post-Graduate Medical School and Hospital, \$250, to investigate the bacteriophage phenomenon and therapeutic application of bacteriophages.

Grant 453: Amedeo S. Marrazzi, assistant professor of pharmacology, New York University College of Medicine, \$500, to investigate sympathomimetic amines.

Grant 454: W. L. Mendenhall, professor of pharmacology, and Albert J. Plummer, assistant professor of pharmacology, Boston University School of Medicine, \$50, to investigate the quantitative determination of theophylline.

Grant 455: Frederick H. Pratt, professor of physiology, and Marion A. Reid, instructor in physiology, Boston University School of Medicine, \$100, to investigate the effect of cardiac drugs on the denervated lymphatic hearts.

Grant 456: II. Morrow Sweeney, professor of physiology and pharma-cology, University of South Dakota, \$100, to investigate the effects and mode of action of certain drugs with analeptic properties, namely ampliciamine and metrazol, after morphine and sodium pentobarbital respectively.

Grant 457: Leland C. Wyman, associate professor of physiology, Boston University School of Medicine, \$372.50, to investigate the factors con trolling the growth and functional efficiency of transplanted adrenal cortical tissue.

Grant 458: George Fahr, professor of internal medicine, University of Minnesota Medical School, \$100, to investigate the effects of lanatoside C on certain types of heart disease.

Grant 459: Mary E. O'Sullivan, Bellevue Hospital, \$100, to investigate the therapeutic effect of estradiol in muscular dystrophy.

Grant 460: Esther M. Greisheimer, professor of physiology, Woman's Medical College of Pennsylvania, \$150, to investigate the effects of sulfanilamide and related compounds on blood sugar and liver glycogen.

Grant 461: Roberta Hafkesbring, associate professor of physiology, Woman's Medical College of Pennsylvania, \$250, to investigate electro-

cardiographic changes during the administration of sulfonamide drugs. Grant 462: B. K. Harned, professor of pharmacology, Versa V. Cole, associate professor of pharmacology, and Hughbert C. Hamilton, associate professor of pharmacology, Moman's Medical College of Pennsylvania, \$288. to investigate the effects of bromide administered to pregnant rats on the learning ability of the offspring.

Grant 463: Abraham White, assistant professor of physiologic chemistry, Yale University School of Medicine, \$200, to investigate the hormones of the anterior pituitary gland.

Grant 464: A. J. Nedzel, associate professor of pathology. University of Illinois College of Medicine, \$300, to investigate response of the animal body to drugs under different environmental conditions.

Grant 465: L. N. Katz, director of cardiovascular research, Michael Reese Hospital, \$200, to investigate the action of various steroids on capillary permeability.

Grant 466: R. H. Rigdon, associate professor of pathology, University of Tennessee, \$100, to prepare a movie of a clinical case of malaria with the pathologic changes.

Exhibit

134 560 MG

102 853 21

2100485

... \$4,639,575 01

15,129 68

# TREASURER'S REPORT

Report of the Treasurer of the American Medical Association
to the Year Ended December 31, 1941
Investments (At Cost) as at January 1, 1941 \$2,317,897.84
Bonds Purchased (At Cost)

\$2,487,897 84 Less Bonds Matured or Sold ..... 65,954 85

Investments as at December 31, 1941 .... \$2,421,942 99

Balance for Investment January 1, 1941 . . \$ 209,294 05 Interest Received on Investments-Year 1941 77,424.09

Uninvested Funds December 31, 1941...

286,718 14

Invested and Uninvested Funds as at December 31, 1941 . \$2,708,661 13

### DAVIS MEMORIAL FUND

Balance in Fund January 1, 1941 ..... \$7,426.65 Interest Earned on Bank Balance-Year 1941 .

Funds on Deposit as at December 31, 1941

7.519 76

HERMAN L. KRETSCHMER, Treasurer

### AUDITOR'S REPORT

January 31, 1942

To the Board of Trustees,

American Medical Association, Chicago, Illinois.

Dear Sirs:

We have examined the Balance Sheet of the American Medical Association, Chicago, Illinois, as of December 31, 1941, and the statement of Income for the year ended on that date, have reviewed the system of internal control and the accounting procedures of the Association and, without making a detailed audit of the transactions, have examined or tested accounting records and other supporting evidence, by methods and to the extent we deemed appropriate except as heremafter stated regarding confirmation of receivables and observation of the inventory taking.

The cash and bank balances have been confirmed by count or by certificates from the depositaries. The U. S. Government and other marketable securities were inspected; also, an acknowledgment as to custody of the securities for safekeeping was received from the Continental Illinois National Bank and Trust Company of Chicago.

We did not independently confirm the accounts receivable by communication with the debtors. The accounts receivable were reviewed as to age and collectibility and, in our opinion, the balances are fully realizable. We reviewed the plan and system of control adopted for inventory taking but we did not observe the taking of the inventories nor did we make tests of the physical existence of the quantities recorded.

Expenditures charged to property and equipment accounts during the year, in our opinion, were properly capitalized as representing additions or improvements. The provision for depreciation for the year appears to be adequate.

In our opinion, subject to the exceptions set forth in paragraph three, the accompanying Balance Sheet and related statement of Income present fairly the position of the American Medical Association at December 31, 1941, and the results of the operations for the year, based on the accounting procedures employed by the Association regarding which the following observations are submitted:

(a) In accordance with the established practice of the Association, the accounts as stated do not include (a) unrecorded assets in respect of accrued interest on bond investments, and membership dues unpaid; and (b) provision for accrued property taxes for the year 1940, and sundry unpaid bills and wages

(b) Subscriptions paid in advance are stated at an estimated amount which is based on cash received in December 1941, on account of 1942 subscriptions. This procedure conforms to the

method used in prior years. (c) Advance payments on publications include an estimated amount (\$137,077.28) for prepaid subscriptions to Hygeia and the amount (\$41,813.79) received in advance for January 1942 advertising, directory information sales and service.

(d) As of January 1, 1941, the land and buildings accounts were restated on the basis of cost, and the complementary credit

in respect to unrealized appreciation applicable thereto was eliminated from the net worth of the Association.

We have received a letter from Messrs. Loesch, Scofield, Loesch and Burke, attorneys for the Association, regarding litigation pending against the Association or its officers at December 31, 1941, which states that the following lawsuits

Jean Paul Fernel—\$1,000,000 00 (libel)
William E. Balsinger—\$100,000.00 (libel)
Muriel Longini—\$1,000 00 (claim)
United States of America (conspiracy in restraint of trade)

The attorneys state that in their opinion all of these suits will be defeated.

Fidelity insurance is carried against the undermentioned officers and employees, in the amounts stated:

anounts stated:
Dr. Olin West, Secretary and General Manager\$10,000 00 Dr. Herman L. Kretschmer, Treasurer
E A TI-C. 10,000 00
Sundry Employees (thirteen, \$1,000 00 each) 13,000 00
Total Fidelity Insurance\$45,000 00

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly.

PEAT, MARWICK, MITCHELL & Co

### INDEX TO STATEMENTS

Balance Sheet, as of December 31, 1941 . Income Account, for the year ended December 31,	1941	Exhibit "A" "B"
Journal Operating Expenses, for the year ended	Decembe	Schedule r 31,
Association and Miscellaneous Expenses, for the December 31, 1941		

#### EXHIBIT "A"

#### BALANCE SHEET

AS OF DECEMBER 31, 1941

Assets Assets	
Property and Equipment-at cost	
Land	A 440 *** 1 D2
Buildings	\$ 328,773 93
Machinery and Printing Equipment 502,167 59	
Office and Laboratory Equipment 193,009 90	
Omce and Laboratory Equipment 193,009 90	
1,871,759 57	
Less—Reserve for Depreciation	958,416 12
Type Metal (Book Inventory)-at average	
cost	22,330 01
Building under Construction	148,400 00
Total Property and Equipment	1,457,920 11
Marketable Securities—at cost (valuation based	
on market quotations \$2,475,533 78).	
U S Government Securities 1,723 816 81	
Railroad, Municipal and Public Utility	
Bonds 698,126 18	2,421,942 99
Representing Investments of	
General Fund	
Association Reserve Fund	
Retirement Reserve Fund . 100,000 00	
Building Reserve Fund . 450,000 00	
Depreciation Reserve Fund . 900,000 00	
***************************************	
Cash held by Treasurer for Investment	286,718 14
Cash in Bank and on Hand	116,420 56
Accounts Receivable	
Advertising , 89,508 69	
Reprints	
Directory, 16th Edition—Estimated realiza	
Die balance	94,155.89
Miscellaneous Accounts Receivable 1,424 18	

Inventories of Materials, Supplies, Work in Progress and Publications . . . . . . Expenditures on Publications in Progress...

NUMBER 17	
LIABILITIES:	
Accounts Payable:	
Co-operative Medical Advertising Bureau\$ Miscellaneous	15,568.84 11,782.26
Total Accounts Payable	27,351.10
Subscriptions Paid in Advance	52,533.66 178,891.07
Net Worth:	
Association Reserve \$ 350,000.00  Building Reserve 450,000.00  Retirement Reserve 100,000.00	
Capital Account:	
Balance as of December 31, 1940 (including	
31, 1940 (including \$40,000.00 restored dur-	
ing year which was written off cost value of	
land in 1933)\$3,282,452.34 Add—Net Income for the	
Add—Net Income for the year ended December	
31, 1941 223,347.64	
3,505,799.98	
Deduct—Amount trans- ferred during year to Retirement Reserve	
Retirement Reserve Fund 25,000.00 3,480,799.98	
	4 300 500 00
Net Worth, December 31, 1941	4,380,799.98
Total	4,639,575.81
EXHIBIT "B"	
INCOME ACCOUNT	
FOR THE YEAR ENDED DECEMBER 31, 1941	
Journal: Gross Earnings:	
Fellowship Dues and Subscriptions	795,460.48 1,009,853.96 6,543.25 202.82
Advertising	6,543,25
Reprints	202.82
Books Insignia	16,018.96 6,588.84 11,565.14
Miscellaneous Sales	11,565.14
Gross Earnings from Journal	1,846,233.45
Operating ·Expenses-Schedule "1" ,	1,104,600.38
Net Earnings from Journal	741,633.07
Association Income:	
Income from Investments	
Miscellaneous Income	
Less—Net Loss on Investments Sold or Called 1,539.10	92,893.94
Gross Income	834,527.01
Association Expenses—Schedule "2" 460,513.58 Miscellaneous Expenses—Schedule "2" 150,665.79	611,179.37
Net Income	\$ 223,347.64
•	
SCHEDULE "1"	
JOURNAL OPERATING EXPENSES	
· FOR THE YEAR ENDED DECEMBER 31, 1941	
Wages and Salaries. Editorials, News and Reporting. Paper—Journal Stock Paper—Miscellaneous Flectrotype and Engravings	\$ 540,800.30 7,519.99
Paper-Journal Stock	258,964.21
Paper—Miscellaneous Electrotype and Engravings	1,226.78 15,918.08
Binding	745.15
Ink Postage—First Class Postage—Second Class Journal Commissions	7,871.43 36,505.49
Postage—Second Class	70,031.85 23,271.87
Conection Commissions	
Discounts Express and Cartage	34,477.29 5,770.86 1,770.55
Office Campling	1,770.55
Office Supplies Telephone and Telegraph Office Printing Power and Light	7,312.07 3,797.60
Factory Supplies Repairs and Renewals—Machinery Insurance and Taxes	19,307.38 2,460.39
Insurance and Taxes	28,221.40
Group Hospital Insurance Building Expenses	3,660.07 39,837.29
Fuel Payrol Miscel	8,425.48 81.00
Miscel Loss on Metal Dross Sales.	21 700 47
Loss on Metal Dross Sales	865.25 6.800.11
Data Debt Loss and Loss on Sales of Equipment	
	1,176,055.95

Depreciation (based on estimated remaining life):  Building	13,031.44	38,238.61
Total		1,214,294.56
Deduct-Proportion of Overhead Expenses charge Publications and Departments	d to other	109,694.18
Total Journal Operating Expenses		\$1,104,600.38

### SCHEDULE "2"

### ASSOCIATION AND MISCELLANEOUS EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1941

Association Expenses:	
Association\$	106,134.94
Bureau of Health Education	39,139.91
Council on Pharmacy and Chemistry	56,375.72
Chemical Laboratory	15,728.50
Council on Medical Education & Hospitals	67.972.48
Committee on Therapeutic Research	6,471.26
Bureau of Legal Medicine and Legislation	29,969,55
Bureau of Investigation	16,097,27
Bureau of Medical Economics	28.851.47
Council on Foods and Nutrition	21,718,22
	18,632,09
Council on Physical Therapy	
Council on Industrial Health	14,623.47
Bureau of Association Exhibits	7.611.49
Committee on Medical Preparedness	30,580.04
Laboratory Equipment Depreciation	607.17
Total Association Expenses\$	460,513.58
Miscellaneous Expenses:	
	110 102 10
Legal and Investigating\$	119,100.19
Sundry Publications (net)	31,482.00
m . 1 hr 11	150 CCE 70
Total Miscellaneous Expenses\$	130,003.79

#### REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

1. It is with great regret and with a sense of extreme loss to the Association and to the cause of medical education and scientific medicine that the Council records the death of Dr. William D. Cutter, who had served as Secretary of the Council on Medical Education and Hospitals since 1931. Dr. Cutter died after a brief illness on Jan. 22, 1942. It is the desire of the Council that the following resolution be included in the Proceedings of this annual session:

In the demise of William D. Cutter, M.D., the Council on Medical Education and Hospitals lost a valuable secretary and organized medicine

Dr. Cutter's services to scientific teaching, his lifetime devotion to medical education, his unwavering faith in the destiny of American medicine and his career as a medical educator made a splendid contribution to the work of the Council.

His character and ideals happily combined with high ethical values will

long be remembered and cherished.

The members of the Council desire to record their appreciation and gratitude for his splendid services and to express their great personal loss in his death,

- 2. Dr. Herman G. Weiskotten, Syracuse, N. Y., a member of the Council since 1940, assumed the responsibilities of the secretary on March 4, 1942.
- 3. After a number of conferences, in many of which the Council participated, the U. S. Army and the U. S. Navy early last summer authorized the granting of commissions to junior and senior medical students as second lieutenants in the Medical Administrative Corps Reserve, U. S. Army, or Ensign H V (P). U. S. Navy, with the understanding that they will not be called to active duty until they have completed one year of internship, the choice as to Army or Navy being voluntary. After graduation they are eligible for appointment as first lieutenant, Medical Corps, Army of the United States or Ensign H V (P), U. S. Navy Reserve. The War Department and the Navy Department recently authorized the granting of commissions also to freshmen and sophomore medical students and to students who are bona fide matriculants in approved medical schools. Selective Service has provided for the deferment of all medical students in good standing who fail to meet the physical require-

ments for such commissions in the Army or Navy. Thus there seems to be assurance of a continuing supply of physicians at least for the next three years as future medical officers and for the care of the civilian population. We cannot be sure that the protection now offered premedical students is such as to assure an adequate number of well prepared medical students to meet future needs.

This program, however, does not provide for the training of young physicians beyond the period of a one year internship. Believing that the further education of a certain number of physicians is vital to the future of the country, a committee of the Council and the Advisory Board for Medical Specialties has been appointed, the chief purpose of which will be to work out plans for preserving a percentage of recent graduates for training in the specialties.

4. With regard to the program for speeding up the production of physicians to meet the war needs by accelerating the medical curriculum, the Council is of the opinion that:

The adoption of a program for an accelerated curriculum for approved medical schools during this war period is a decision which should be determined by each medical school.

The decision of a medical school to initiate an accelerated curriculum should be made only after a comprehensive survey of the personnel, facilities and equipment of the school and its ability to give a medical education without deterioration of the quality of the medical instruction and in conformity with the statutes of the various states and the rulings of the state medical boards.

The Council stands ready to make necessary inspections whenever in its judgment such inspections are required to maintain the present high standards of medical education.

The Council believes that financial assistance for needy medical students during the accelerated program is best provided through scholarships or loans.

Similar resolutions have been adopted by the Association of American Medical Colleges and the Federation of State Medical Boards of the United States. In fact, a liaison committee of the Council and the Association of American Medical Colleges has been appointed to confer on this and other problems of mutual interest.

Many of the medical schools have announced that they are planning to adopt an accelerated curriculum. Various plans of acceleration have been adopted, practically all of which involve the elimination of the long summer vacation and the completion of the medical course in approximately three calendar years. Some of the schools plan to admit a new class every nine months, and others will continue to admit only one class annually.

Seven schools have already advanced their senior year, and one hundred and twenty-eight students were graduated in February or March of this year by three of these schools.

Every precaution possible is being taken by the Council to preserve the present high standards of medical education in connection with this acceleration of the medical curriculum.

5. As of March 1, 1942 sixty-five four year medical schools in the United States are approved, one of which is on probation. Recognition of one school was recently withdrawn; this action being taken without prejudice to the students enrolled as of Sept. 1, 1942. In Canada there are nine approved medical schools. In the United States ten schools of the basic medical sciences are included in the approved list, two of them on probation. In Canada there is one approved school of the basic medical sciences. There is also in the United States one school offering only clinical courses which is approved. This school will cease to function with the graduating class of 1942.

Three medical schools were visited during the year, and special reports of progress were received from at least a dozen others.

In cooperation with the Office of Procurement and Assignment, the faculties of medical schools have been classified with respect to availability for medical service in national defense. Affiliated hospital units have also been established, and some of these are in active service. The importance of not permitting any faculty member considered necessary for the operation of a medical school to serve as a member of an affiliated unit has been stressed.

6. The Council's study of continuation courses for practicing physicians is being continued by correspondence and question-

naire. The results are published annually in the Educational Number. In addition there were published in The Journal in October 1941 and in January and April 1942 opportunities currently available for such study.

- 7. The members of the Council, the secretary and staff have attended and actively participated in numerous conferences and meetings in medical, educational, hospital, nursing and allied fields, including the Clinical Congress of the American College of Surgeons, the American Hospital Association, National League of Nursing Education, American Dental Association, the American Council on Education and the revision of the Manual of the Essentials of Good Hospital Nursing Service.
- 8. The theme of the Annual Congress on Medical Education and Licensure was medical education in a war emergency and also the care of the civilian population. The program included addresses by the surgeon generals, or their representative, of the Army, Navy, Public Health Service and the director of Selective Service. Over five hundred medical educators attended and received first hand information on these vital issues.
- 9. The problem presented by the scarcity of interns and residents is being carefully studied by the Council with a view to preserving the educational aspects of hospital training programs even though the hospital staffs are being depleted by inductions into the nation's armed forces. Hospitals are being advised to conserve the doctors' time for the purely professional work in the hospitals and to delegate the technical work to nonprofessional attendants wherever possible.
- 10. The Committee on American Health Resorts of the American Medical Association has requested the Council to cause its field inspectors to make inspections of health resorts. The Council has agreed to visit and inspect several spas to ascertain the advisability of assuming responsibility for such a program.

Furthermore, it is understood that a request is to be presented to the House of Delegates at this session for the inspection and approval of schools for the training of medical record librarians.

It was the sentiment of the Council that, if it is to take on these new duties, such inspections and approvals should be in consonance with the usual procedures of the Council.

11. All existing specialty boards, fifteen in number, are currently approved by the Council, as well as subdivisions of the specialties of internal medicine and surgery recognized by the boards in internal medicine and surgery. By agreement with the several boards, concurrent approval of residencies, fellowships and other opportunities for graduate study in the specialties has been established and is apparently operating to the satisfaction of all concerned.

12. The Council has now in process of compilation a volume to constitute part II of the Council's study of graduate medical education, which will deal with institutional apprenticeships, namely internships, residencies and fellowships. Part I, which was completed in 1940, covered a field study of continuation courses for practicing physicians.

13. A thorough revision of the "Essentials of an Approved Internship" is presented herewith for ratification (see appendix to Report).

14. A summary of the work of the hospital division of the Council for the fiscal year March 1, 1941 to March 1, 1942, including hospital registration, hospitals approved for intern training, for residencies and fellowships in the specialties, as well as the status of technical schools under the supervision of the Council, follows:

**Hospital Register**

	c 303
Hospitals registered, March 1, 1941	207
Registered during the Seatter	140
Closed or transferred to unclassified his.  Hospitals registered, March 1, 1942	6,338
Hospitals Approved for Training Interns	721
Hospitals approved, March 1, 1941	10
Approved during the year.	732
Hospitals approved, March 1, 1972	
Suproved Residencies and Fellowships	606
A state and single March 1, 1941	31
Hospitals approved for residency training, dates Approved during year. Removed from approved list. Hospitals approved for residency training, March 1, 1942.	632
Removed from approved for residency training, March 1, 1942	0,,
Moshing aldraces to	

63

### TECHNICAL SCHOOLS

ILCHNICAL SCHOOLS	
Approved Schools for Clinical Laboratory Technicians	
Approved schools, March 1, 1941.  Approved during the year.  Removed from approved list.  Approved schools, March 1, 1942	152 29 7 174
Approved Schools for Physical Therapy Technicians	
Approved schools, March 1. 1941. Approved during the vear Removed from approved list Approved schools, March 1, 1942	16 1 1 16
Approved Schools of Occupational Therapy	
Approved schools, March 1, 1941 No schools approved or removed during the year Approved schools, March 1, 1942	6 6
INSPECTIONS OF HOSPITALS AND TECHNICAL SCHOOLS	
Hospitals	
For: Intern training Residencies and fellowships Intern training and residencies Registration	83 81 37 11
Total	212
Inspections	
Individual residencies and fellowships investigated  Technicial Schools	235
Clinical laboratory schools	50
Physical therapy schools Occupational therapy schools	2

14. During 1941 a complete survey was made of the biographic records of approximately seven thousand physicians practicing medicine in the United States on the basis of medical studies abroad For a period of twelve years beginning in 1926 the credentials of these physicians were verified by official correspondence with the medical schools abroad, either directly or through the diplomatic services. When it became impossible to continue this system of verification, state medical licensing boards were cautioned to scrutinize carefully all such credentials and to evaluate them with deliberation. The policy was introduced, to become effective with the American Medical Directory in 1942, to exclude from publication those graduates whose credentials obtained abroad have not been officially verified and who do not hold licenses to practice in the United States. The key symbol used in the Directory to denote the medical school and year of graduation, as, for example, Eng 7,'07, will be followed by a ° (Eng. 7, '07°) indicating that the credential has not been officially verified by the American Medical Association but is the M.D. degree or equivalent certificate accepted by the licensing board as meeting the educational requirements for licensure.

15. Major publications during 1941 and up to the time of the preparation of this report compiled by the Council and widely distributed included:

Hospital Service in the United States, containing the register of acceptable hospitals and indicating hospitals approved for internships, residencies and fellowships

State Board Licensure Statistics, a compilation based on the records of state licensing boards and specialty examining boards.

Medical Education in the United States and Canada, including a list of medical schools currently approved and statistical compilations regarding undergraduate and graduate medical education.

Proceedings of the Annual Congress of Medical Education and Licensure.

Choice of a Medical School.

Total

Approved Colleges of Arts and Sciences, a compilation based on lists of institutions approved by national and regional agencies acceptable to the Council

Schools Approved for Training Clinical Laboratory, Physical Therapy and Occupational Therapy Technicians

16. Because of the added responsibilities placed on the Bureau of Medical Economics and the Council by the national emergency, no report is available concerning the resolution adopted by the House of Delegates in 1938 requesting the Bureau of Medical Economics and the Council to undertake a study of the practice in hospitals of pathology, radiology, anesthesia and physical therapy

17. The Twenty-First Annual Census of Hospitals covered the year 1941 and was reported in the Hospital Number of The Journal of the American Medical Association, March 28, 1942.

The census covers 6,358 registered hospitals with a total capacity of 1,324,381 beds. The increase in number of beds yearly has been uniformly in the neighborhood of 30,000, but the present annual census showed a net increase over the previous year of 98,136 beds. This increase alone is the equivalent of one 269 bed hospital for each day in the year, Sundays and holidays included.

The number of patients admitted during the year was 11,596,188, of whom 10,646,947 were to general hospitals alone.

Births in hospitals number 1,404,940. The rate of increase in hospital births was double that of the previous year.

This latest census of hospitals produced some valuable data which were obtained this year for the first time. Included in these is the number of technical personnel employed in all hospitals. There are, for example, 9,609 full time laboratory technicians and 5,534 full time x-ray technicians. The report includes also dictitians, physical therapists, pharmacists, medical record librarians, other librarians, medical stenographers, occupational therapists, dental hygienists and social service workers

Other new items covered in this survey were

Number of patients operated on, 5,201,650, or 449 per cent of all patients admitted

Number of deaths in all hospitals, 510,158, or 4.4 per cent of the patients admitted

Necropsies, 125,640, or 246 per cent of the total deaths,

The response to the Twenty-First Annual Census of Hoppitals was unusually good, there being only 41 hospitals in a total of 6,358 from which no response was obtained

18 Finally, the Council desires to emphasize again that great caution should be exercised by medical educators and hospital administrators that there be no lowering of the standards of medical education and hospitals in our efforts to assist the federal and state officials to maintain adequate medical care for the military forces and the civilian population

Respectfully submitted

COUNCIL ON MIDICAL EDUCATION AND HOSPITALS
RAY LAMAN WILBUR, Chairman
RIGINALD FITZ
RUSSFLL L. HADEN.
CHARLES GORDON HIAD
J. H. MUSSLR.
HARLY B. STONT
H. G. WEISKOTTEN, Secretary

APPENDIX TO REPORT OF COUNCIL ON MEDICAL EDUCATION AND HOSPITUS

### ESSENTIALS OF AN APPROVED INTERNSHIP

### I INTRODUCTION

- 1. The primary function of a hospital is to provide facilities where the sick and injured may be given scientific medical care
- 2 The operation of a well organized, effective program for the training of interns enhances the quality of care rendered to the sick and in nowise conflicts with the chief purpose for which the hospital is maintained
- 3 An important purpose of the internship is to supplement the undergraduate medical course by a well rounded experience of closely supervised clinical practice in diagnosis and therapy
- 4. Hospitals which are approved for the training of interns accept a serious responsibility to their interns and to the communities in which they may later practice
- 5. The internship is one of the most important phases of medical education. Internships designed without a well supervised educational program, or arranged merely to provide hospitals with resident personnel to relieve visiting physicians of tasks which they do not wish to perform, cannot be approved

### H. THE INTERNSHIP

1 Basis of the Internship - The internship is a form of apprenticeship. The intern assists in the care of patients and

receives in return instruction from the hospital staff in the clinical and laboratory aspects of his profession.

2. Length of Internship.—An internship should be of not less than twelve months' duration. Longer periods of service are desirable because they permit a more satisfactory educational program and allow the intern sufficient time in which to be trained adequately to assume increasing responsibility in various fields of medicine.

3. Types of Internship.—The Council approves "rotating,"

"mixed" and "straight" internships.
A "rotating" internship is defined as one which provides supervised experience in internal medicine, surgery, pediatrics, obstetrics and their related subspecialties, together with experience in laboratory and radiologic diagnosis.

A "mixed" internship is defined as one which provides supervised experience in two or more, but not in all, of the clinical divisions named.

A "straight" internship is defined as one which provides supervised experience in a single department, although it may include limited opportunity for work in a related subspecialty. Straight internships are now approved in internal medicine, surgery, pediatrics, obstetrics (with or without gynecology) and pathology.

In rotating and mixed internships of a year's duration the time allotted to internal medicine should equal or exceed the time given to any other service. Not more than six months' time in a year's rotating or mixed internship should be devoted to any one branch of the service, including its related specialties. Too frequent a rotation of assignments in such internships is undesirable. Arrangements should be made so that each intern shall devote at least two consecutive months respectively to internal medicine and to surgery.

### III. HOSPITALS ELIGIBLE FOR APPROVED INTERNSHIPS

The experience of the Council indicates that the requirements for an approved internship can be met only in a general hospital registered by the American Medical Association, admitting at least 2,500 patients or more per year, having an average daily census of at least 85 patients, exclusive of the newborn and providing a sufficient number and variety of patients in the several branches of medicine in which it undertakes to train interns. For the purpose of this section, patients who are not available to the interns for clinical study are not included.

### IV. THE HOSPITAL STAFF

1. The Staff .- The staff, both visiting and intern, should be composed of physicians who are graduates of medical schools acceptable to the Council. The visiting staff should be composed of physicians (a) who are of unquestioned professional and moral integrity, (b) who are proficient in the fields of practice to which they devote themselves, (c) who give personal attention to the patients under their charge and (d) who pledge themselves, both individually and as a group, to provide ample instruction to the intern staff and to cooperate in their work.

### V. CLINICAL RECORDS

1. Histories .- Adequate records should be maintained. The attending physician or surgeon should be directly responsible for the accuracy and completeness of clinical records concerning all patients under his care.

2. Endorsement of Records .- All case records should show by signature the names of the persons who have written them or their individual parts. Orders for treatment or for special diagnostic studies and progress notes should be signed by the person who writes them. Case histories and physical examinations completed by interns should give evidence of having been verified by the attending physician.

3. Filing and Indexing Records .- A competent medical record librarian should be in charge of the filing and indexing of records. To be of educational value, all case records should be readily available for special study or for reference work. When a patient is readmitted to the hospital, all previous records of his case should be obtainable without undue loss of time. Besides the usual indexes of patients by name and number, there should be an index arranged according to primary and secondary diagnoses; all surgical procedures should be listed, and the names of physicians who refer patients to the hospital should

also be recorded. Statistics concerning the hospital's clinical work should be compiled monthly and should be available at all times to the medical staff. An'analysis of these figures should be included in the annual report and should be classified by departments, i. e. internal medicine, surgery, obstetrics, pediatrics (excluding the newborn), gynecology, ophthalmology, otolaryngology and so on, presenting for each department at least the following data concerning private and ward services:

Number of patients admitted or discharged. Number of hospital days of care or average daily census. Deaths and necropsies. Surgical procedures.

### VI. LABORATORIES

- 1. Equipment.—There should be clinical and pathologic laboratories in the hospital, under competent direction. The laboratory or laboratories should be equipped and staffed to perform ordinary routine tests, including bacteriologic, serologic, chemical, basal metabolic and tissue examination.
- 2. The Pathologist.-The pathologist should hold the degree of doctor of medicine from an approved medical school and should have qualifications in pathology acceptable to the Council. He should give to the hospital sufficient time to enable him (a) to supervise adequately the work done in the main pathologic laboratory of the hospital and in its branch laboratories if any, (b) to examine or supervise the examination of all tissues removed in surgical operations and to furnish reports of their gross and microscopic findings, (c) to perform or supervise the performance of all necropsies conducted in the hospital and render a full report of the findings, (d) to assist in the teaching of interns, (e) to be available for consultation with members of the attending and intern staff meetings and conduct or participate in clinical-pathologic and departmental conferences.
- 3. Necropsics.—The hospital should provide proper facilities for the conduct of postmortem examinations in the presence of interns and staff. The necropsy rate has come to be recognized as an index of the scientific interest of the medical staff, and well performed postmortem examinations enable progressive physicians to improve their clinical ability. No hospital will be approved for intern training which does not maintain each year a record of necropsies performed in at least 15 per cent of its deaths exclusive of stillbirths and cases released to legal authorities. Beginning with the calendar year 1943, a minimum of

thirty-six necropsies a year will also be required.

4. Records.-A copy of each examination performed in the laboratory of pathology should be retained in the department in addition to the copy filed on the patient's clinical record. All these examination reports should be indexed by name, number and diagnosis. Slides for microscopic study of specimens removed at operation or by necropsy should also be filed in the laboratory. VII. RADIOLOGY

1. Equipment.—This department should be equipped at least with suitable protected apparatus for roentgenographic and fluoroscopic procedures. The rooms provided for fluoroscopy and for viewing roentgenograms should be large enough to accommodate comfortably both interns and attending physicians during the examination of patients or interpretation of films.

2. The Radiologist.-The radiologist should hold the degree of doctor of medicine from an approved medical school and should have qualifications in radiology acceptable to the Council. He should give to the hospital sufficient time to supervise adequately the technical work of the department, to perform or supervise fluoroscopic examinations, to interpret films, to consult with staff physicians, and to instruct the interns. He should also attend staff meetings and the meetings of his department.

3. Records.-A copy of each examination report should be kept in the department in addition to the one filed in the patient's record. These reports and their original films should be filed and indexed by name, number and diagnosis.

# VIII. MEDICAL LIBRARY

There should be a medical library, in charge of a competent librarian, located where it is readily accessible to the interns and staff and containing a useful collection of recent editions of standard text and reference books and current files of not less than ten of the representative medical journals. Interns should be encouraged to use the library in connection with their clinical work and may properly be asked to report on current

medical opinion concerning any special case at the bedside or to review current literature on any selected topic more formally at staff conferences or at journal club meetings that may be organized for the purpose of stimulating an interest in reading.

### IX. ORGANIZATION FOR INTERN TRAINING

- 1. The staff should be organized into departments or sections representing such specialties as internal medicine, surgery, pediatrics, obstetrics, pathology and radiology, in order to administer the professional services of the hospital and to supervise the program of intern training to best advantage. Overdepartmentalization should be avoided, although in large hospitals departmentalization may extend to include such other specialties as ophthalmology, otolaryngology, orthopedic surgery, urology, neurology and psychiatry. Each department or section should have a chairman or department head to serve for at least a year. He should be well qualified for this position by experience in his special field, should be responsible for the general conduct of the clinical work in his department and should help to formulate and execute the intern training plan to be carried out in his department. Frequent rotation of attending physicians in charge of the various services should be avoided. Assignments should be made so that the intern has opportunity each day to meet his attending physician for the conduct of systematic ward rounds or clinics and for the study of the patients under his care. In hospitals where the management of private patients is part of the intern's responsibility, no intern should be called on to assist at any one time an unreasonable number of attending or visiting physicians.
- 2. Conferences.—The staff, either as a whole or by departments, should conduct periodically and at least once a month, staff or departmental meetings in which the work of the various clinical or laboratory services is thoroughly analyzed. Interns should be expected to attend and to take an active part in these meetings. Each month there should be one or more clinical-pathologic conferences. In addition, there should be such departmental conferences as the current activities of the various departments may require. These conferences should be educational in nature and more than a perfunctory demonstration of interesting material. As has been suggested, the intern also should be encouraged to read medical literature in connection with his clinical work and may properly be asked to report formally on current medical opinion concerning any special case.
- 3. Intern Committee.-There should be a committee of the staff, chosen from the chairmen of the several departments in the hospital, charged with the duty of organizing, supervising and evaluating the plan of intern instruction. The teaching obligations of individual staff members cannot be delegated to this committee but should be supervised by it.

### X. NATURE OF THE INTERN'S DUTIES

Each intern on duty in any clinical department should write or dictate the history, physical examination and his own diagnostic impression of all patients assigned to him. He should have laboratory work assigned to him of such nature as to give him familiarity with clinical laboratory methods and to develop in him competence in the use of all those which the average physician may be called on to perform. The nonoperative treatment of each patient should, in the main, be his responsibility

under critical guidance by the visiting physician.

The intern's record should be checked within twenty-four hours by a competent supervising physician, calling attention to errors in observation and adding supplementary notes containing any relevant data which the intern may have omitted. If the intern's record is acceptable, the attending physician should countersign and thus approve it. The intern should enter notes of progress on the record, describing the patient's clinical course from time to time and make sure that all treatments or special diagnostic studies are correctly recorded. When a patient is discharged, the intern should write a concluding note which describes the final diagnosis and the patient's condition as he leaves the hospital. This should be countersigned by the attending physician.

XI. TEACHING PROGRAM

1. Bedside Teaching .- The most important phase of intern instruction consists in well conducted teaching at the bedside. By this is meant systematic instruction of the intern by the attending physician with an ample discussion of the history, the clinical and laboratory findings, the diagnosis and the treatment of each patient. To conduct such teaching properly is the duty of the attending physician in direct charge of the patients assigned to the intern. It cannot be delegated to others, though it may be supplemented by supervision of the intern's work by junior staff members or resident physicians. Duties which have no educational value should be avoided as far as possible.

- 2. Assignment of Cases.-The teaching program should provide ample time for the intern to study and give thorough care to all patients assigned to him. An excessive number of patients is not conducive to careful work; indeed, undue pressure of routine tasks in a hospital may lead an intern to form habits which are undesirable and even harmful. For each intern assigned to a major service, such as internal medicine, surgery, obstetrics or certain specialties, such as neurology, an admission rate averaging not more than two patients a day is desirable.
- 3. Internal Medicine.-This department should afford each intern an adequate amount of instruction and experience in general medicine and in such special medical technics as transfusion, intravenous and other parenteral therapy, and paracentesis. Preferably there should be facilities for the study of patients with tuberculosis, and with contagious, nervous and mental diseases. Each intern should receive careful instruction in modern diet therapy with technical assistance from trained dietitians. The social aspects of medicine should also receive proper emphasis.
- 4. Surgery.-Surgical training should be planned to emphasize diagnosis and preoperative and postoperative treatment of surgical cases rather than skill in operative technic. Thus the intern's work in surgery should be rather that of an assistant than of an operator. The dressing of surgical wounds should be regarded as an important part of his experience, thus giving him a particularly valuable opportunity to observe carefully the immediate effects of surgical procedures and their treatment. He should obtain instruction and experience in administration of various types of anesthetics under the supervision of a trained anesthetist.
- 5. Obstetrics.—The intern should obtain training and experience by delivering under supervision at least 10 patients. At other deliveries he should act as an assistant, not merely as an
- 6. Pathology.-The intern should receive experience in clinical laboratory work to perfect his skill in routine laboratory procedures. He should also receive instruction from the pathologist in the procedures of pathologic diagnosis. He should attend and, when possible, assist at necropsies, receiving instruction in technic and in pathologic interpretation. He should be required to be familiar with the pathologic studies of surgical specimens and necropsy material which concern his own patients. No other assignment should be permitted to interfere with his attendance at the postmorten examination of any case which has been under his care. Whenever possible, he should assist in the preparation and presentation of the clinical-pathologic conference when cases assigned to him are being reviewed.
- 7. Outpatient Department .- It is desirable that each intern should have supervised experience in outpatient work under circumstances comparable to the office practice of medicine, Outpatient clinics to which interns are assigned should be operated in close affiliation with corresponding services in the hospital, thus encouraging careful follow-up work and observation of patients over a long period of time.

### XII. MISCELLANEOUS

1. Record of Interns' Work .- Certain state medical examining boards, medical schools and other agencies may desire detailed information regarding the interns' training, and therefore it is suggested that hospitals keep a record of each intern's work. Such information may be supplied to the superintendent or record office by the intern himself on special forms where space is provided for data such as the period of time covered, the service, the number of patients admitted on service, the number of histories and physical examinations completed by the intern, the number of anesthetics given by him, the number of operations performed by him and the number in which he

has assisted, the number of deliveries conducted by him and the number in which he has assisted, the number of necropsies attended, the hours spent in the laboratory, and the number of lectures, clinics and conferences attended.

2. Rules Regarding Interns.—The hospital should supply each intern with written or printed rules defining his duties and privileges.

3. Interns' Living Quarters.—The hospital should provide for the intern comfortable living quarters, healthful food and suitable recreational opportunities.

4. Interns' Health.—The hospital should be responsible for the interns' health, at least to the extent of providing at the beginning of each intern's service a careful physical examination, including a roentgenogram of the chest and immunization against communicable diseases. There should be at all times a readily accessible consultation service for interns with some member of the staff definitely assigned to this work. Periodic x-ray examination of each intern's chest at six month intervals during his term of service is desirable.

5. Relationship Between Hospital and Intern.—To avoid misunderstanding, it is desirable that each intern at the time of his appointment should enter into a formal agreement with the hospital defining mutual obligations. Such agreement should be honorably fulfilled by both parties. The breaking of it by either a hospital or an intern is not condoned by the Council. Whenever complaint is made of a breach of agreement it is the policy of the Council to ask each of the parties to submit an explanatory statement. Such statements become a part of the physician's and the hospital's record.

### XIII. ADMISSION TO THE APPROVED LIST

1. Application for Approval.—Hospitals that desire to be accredited for intern training should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago. For this purpose forms in duplicate will be supplied on request. They should be filled out with care by the superintendent or by some member of the staff who is familiar with the hospital's intern program, and one copy should be returned to the Council.

2. Approval for the training of interns is granted for the current year only and is subject to renewal annually. When conditions warrant it, approval may be withdrawn at any time.

# REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association:

Regular meetings of the Council on Scientific Assembly were held during the week of the annual session of the Association in Cleveland in June 1941 and in Chicago on Oct. 31, 1941.

# SESSIONS FOR GENERAL PRACTITIONERS

In accordance with the terms of the report of the Reference Committee on Sections and Section Work with respect to a resolution requesting the creation of a Section on General Practice, which was presented to the House of Delegates at the Cleveland session, two Sessions on General Practice in the Section on Miscellaneous Topics will be held at the Atlantic City session. The Council on Scientific Assembly appointed Dr. Lucien Stark of Norfolk, Neb., to serve as chairman and Dr. Wingate M. Johnson of Winston-Salem, N. C., as secretary to arrange a program for the sessions for general practitioners at Atlantic City.

# SESSION ON LEGAL MEDICINE

One session in the Section on Miscellaneous Topics will be devoted to a program on legal medicine. The Council appointed Dr. William C. Woodward of Washington, D. C., to serve as chairman and Dr. Alan R. Moritz of Boston as secretary for this session. A program will be presented during the current meeting of the Association.

# THE PAN AMERICAN FEATURE OF THE ATLANTIC CITY SESSION

The Council on Scientific Assembly submitted a recommendation to the House of Delegates at the Cleveland session in 1941 to the effect that the Atlantic City session in 1942 be in the nature of a Pan American session, and this recommendation was approved by the House of Delegates. It was the hope of the Council and of all concerned that it would be possible to have present at the Atlantic City session a large number of the physicians of South and Central America, Mexico and Canada, but, greatly to the regret of the Council and of the officers and members of the American Medical Association, condition-created by the war have made it impossible to carry out the original plans. However, several distinguished physicians from southern countries and from Mexico and Canada have accepted invitations to participate in the scientific work of the Association as presented through the General Scientific Meetings and the meetings of the sections of the Scientific Assembly.

Unless emergencies created by the war interfere, a number of physicians from the Latin American countries and from Canada will contribute to the scientific program to be presented during the Atlantic City session.

It is the very earnest desire of the American Medical Association that cordial and lasting professional relations be established and maintained between the physicians of the United States and those of all the nations of the Western Hemisphere, and, although it has not been possible to carry out fully the proposed plans for the current annual session, it is the hope of the Council on Scientific Assembly that when the war is over it will be possible to arrange for an Inter-American session at which the American Medical Association will be honored by the presence of many of the members of scientific medical organizations of all the countries in North and South America.

The Council desires to express its most grateful appreciation to Dr. Hugh S. Cumming, Dr. Wilbur A. Sawyer and Dr. Howard R. Hartman, members of the Advisory Committee on Pan American Session, for their helpful service in connection with the efforts that were made to carry out the Pan American program proposed for the Atlantic City session.

### DETERMINATION OF SERUM SENSITIVITY

At the Cleveland session in 1941 Dr. Walter W. Mott of New York submitted a resolution providing for the appointment of a committee to study the determination of serum sensitivity. This resolution was referred to the Council on Scientific Assembly in accordance with the recommendations offered by the Reference Committee on Miscellaneous Business and was given careful consideration by the Council at its meeting in October.

It was unanimously agreed by the members of the Council on Scientific Assembly that the question of determination of serum sensitivity does not appear to have been sufficiently elaborated from a scientific point of view to warrant a recommendation at this time.

### THE SCIENTIFIC PROGRAM

The official program of the Atlantic City session is submitted as a part of the report of the Council on Scientific Assembly.

Within the last few years the officers of the sections of the Scientific Assembly and the Council have persisted in an effort to make the scientific programs more generally interesting and helpful and have encouraged joint section meetings, symposiums and panel discussions. It will be noted through reference to the official program that, because these innovations seem to have met with general approval, several sections have arranged for joint meetings and panel discussions this year.

The Council desires to commend the officers of the sections of the Scientific Assembly for their earnest and efficient service and to express its grateful appreciation to these officers and to thank all those who will appear as contributors to the program to be presented at the 1942 session of the Association.

Respectfully submitted.

JAMES E. PAULLIN, Chairman
CLYDE L. CUMMER.
J. GURNEY TAYLOR.
A. A. WALKER.
FREDERICK A. COLLEP.
FRED W. RANKIN, President-Elect.
MORRIS FISHBEIN, Editor, THE
JOURNAL.
OLIN WEST, Secretary.

# MEDICAL LEGISLATION

### STATE MEDICAL LEGISLATION

### Arizona

Bill Passed.—S. 14-X has passed the senate, to amend the osteopathic act enacted in 1941. As passed the bill (1) redefines osteopathy to mean "that system of treatment and healing of abnormalities of the human mind and body as taught and practiced in the standard colleges of osteopathy," (2) eliminates the subject of surgery as an examination requirement and (3) prescribes conditions under which osteopaths may practice major surgery and confines such practice to hospitals or institutions "osteopathically owned or controlled."

Bills Introduced.—S. 3-X proposes to make it a misdemeanor for any person infected with a venereal disease and, knowing of that condition, to engage in sexual intercourse. A second such offense is to be deemed a felony. S. 2-X proposes to authorize the state department of health to detain, hospitalize and quarantine any person known to be infected with a venereal disease. A person so detained and quarantined who wilfully refuses to submit to the treatment prescribed by the department is to be guilty of a misdemeanor. H. 18-X proposes to suspend in favor of any person during his active service with the military or naval forces of the United States the annual registration fees required by law.

### New Jersey

Bill Passed.—A. 229 passed the assembly, April 13, proposing so to amend the chiropody practice act as to provide, among other things, that chiropody is "the diagnosis of any ailment of the human foot, or the treatment thereof by any one or more of the following means: local medical, mechanical, minor surgical, manipulative and physio-therapeutic or the application of

external medical or any other of the aforementioned means except minor surgical to the lower leg and ankle for the treatment of a foot ailment; not including, however, the treatment of tuberculosis, osteomyclitis, malignancies, syphilis, diabetes, tendon transplantations, bone resections, amputations, fractures, dislocations, the treatment of varicose veins by surgery or injection, the administration of anesthetics other than local, the use of radium, the use of x-ray except for diagnosis, or the treatment of congenital deformities by the use of a cutting instrument or electrosurgery. The term 'local medical' hereinbefore mentioned shall be construed to mean the prescription or use of a therapeutic agent or remedy where the action or reaction is intended for a localized area or part."

Bills Introduced .- A. 292 proposes to require a medical inspector who observes or finds a physical defect in the examination of a school child to notify the parents as to the defects found. If the parents fail to provide remedial treatment within a reasonable time, the child may be excluded from school until such time as remedial treatment has begun. A. 295, to amend the act relating to the public schools of the state, proposes to make it mandatory for the board of education to require immunization to diphtheria as a prerequisite to attendance at school or to require proof of immunity. A. 296, to amend the law relating to compulsory vaccination or revaccination of teachers and pupils in the public schools, proposes to make it mandatory for a board of education to exclude from school any teacher or pupil who has not been successfully vaccinated or revaccinated, unless the teacher or pupil shall present a certificate signed by the medical inspector appointed by the board that the teacher or pupil is an unfit subject for vaccination.

# MEDICAL ECONOMIC ABSTRACTS

### EXPENDITURES FOR MEDICAL CARE

During the period of 1934-1936 the United States Bureau of Labor Statistics, with the assistance of other government agencies, made numerous studies of consumer expenditures in the lower income brackets. These studies have now been combined

TABLE 1 .- Expenditures for Medical Care

		Medical Care			
	Average Number of Persons Average Expenditure			Per Cent of Total Current Expendi-	
Annual Net Income	per Family	Per Family	Per Person	ture	
All familles	3.60	\$ 59	\$16	3.9	
\$500 to \$500 \$600 to \$300 \$100 to \$1,200 \$1,500 to \$1,500 \$1,500 to \$2,100 \$2,100 to \$2,400 \$2,400 to \$2,400 \$2,700 to \$2,700 \$2,700 to \$3,000	3.18 3.41 3.54 3.62 3.76 4.03 4.27	22 33 42 53 64 78 81 97	7 10 12 13 13 21 20 23	3.4 3.8 3.8 3.9 3.0 4.2 4.0 4.0	
\$3,000 and over		115	24	3.5	

in a "Summary Volume" 1 covering 14,469 families, with an average of 3.6 persons and an average income of \$1,458 located in forty-two cities with a population of over 42,000. No families in receipt of relief or with an annual income of less than \$300 during the year were included, nor any family in which the chief wage earner, classified as a clerical worker, received over \$2,000

a year, but no upper limit was placed on the income of wage earners or on the total family income. Only 1.0 per cent of the families had an average income of \$2,396 or an average per person of over \$1,200.

Table 1 summarizes the expenditures for medical care together with the comment:

"The figures on medical care expenditure represent medical, dental and hospital services purchased in general on an individual fee basis, drugs and medicines, medical appliances, and health insurance premiums. Unpaid medical bills, if incurred within the year of the investigation, are included as expenditures. The total cost of the medical services received by the families represented in the study was undoubtedly somewhat larger than this amount. Clinic and ward services are supported in part by endowments and contributions to hospitals and in part by services contributed by the medical staff. Some, but not many,

TABLE 2.—Families Reporting Service Charged For and Service Free

	Families Reporting Service		
•	Charged For		
Room in hospital ward	. 29	G	
Clinic		4	
General practitioner:			
Home visit	. 315	a	
Office visit	. 369	2	
Specialist		2	

of these families reported the payment of clinic fees, and as many as 4 per cent paid for beds in hospital wards. Information on the subject of free medical care was obtained only in New York. For the 897 white families of employed ware

^{1.} William, Faith M., and Hanson, Alice C.: Money Disbursements of Wage Earners and Clerical Workers, 1934-36, Summary Volume, Bull. 638, Bureau of Labor Statistics, 1941.

earners covered in the New York City investigation," the figures given in table 2 show "the number of families reporting free service, together with those reporting charges for corresponding service."

Some doubt is thrown on the accuracy of the figures concerning free service by the fact that in 1936 there were 2,372,866

Table 3.—Distribution of Items of Medical Care

•			۸	verage for All
Consuel was attlement			P a	milies Surveyed
General practitioner:				
Home visit				\$ 6.95
Office visit			_	686
Dentist				10.84
Medicine and drugs			•	9.70
Encolated and other manufactures			•	
Specialist and other practitioner.		•		8.92
Accident and health insurance	-			4.05
Hospital, private room				3.60
Hospital, beds in ward			_	1.90
Eyeglasses			•	3.22
Olinia		•		.45
Clinic			•	
All other medical expenses .	•	-		2.69

patients who received service in outpatient departments of New York City.² This is 32 per cent instead of 1.2 per cent that was found among 897 families studied.

The expenditure of the average family in this group for all forms of medical care was \$59.18, divided among the items shown in table 3.

# EXPANSION OF LOCAL HEALTH ORGANIZATION

Nearly all local public health services except in the large cities have been organized within the last twenty-five years, There were only fourteen counties in the United States in 1915 with full time local service. After the passage of the Social Security Act in 1935 growth was rapid until on June 30, 1941 1,669, or 54 per cent, of the counties in the United States had such full time service. Six hundred and sixty-three of these were single district units, four hundred and twenty-six local district units and five hundred and eighty state district units. On the same date there were, in addition to those county services, one hundred and three cities with full time municipal These one thousand six hundred and sixty health units. counties and one hundred and three cities represented approximately 70 per cent of the total population of the forty-eight states and the District of Columbia. Additional full time service units are now being organized in many defense areas,1

#### **AUXILIARY** WOMAN'S

### Texas

The Northeast Texas District auxiliary met, recently, at Longview. Dr. Preston Hunt, Texarkana, spoke on national defense. A talk illustrated by motion pictures was given by Mrs. Walton Sumner on South America.

The Dallas County auxiliary met, recently, at the Dallas Country Club with one hundred and twenty members and four guests present. The auxiliary has for one of its special projects this year a study of antepartum care.

The Bexar County auxiliary met, recently, in San Antonio with one hundred and five members and five guests present. Mrs. S. F. Harrington, Dallas, president of the state auxiliary, spoke on the subject "Our Opportunities." Dr. Frank N. Haggard, San Antonio, spoke on "The Value of Organized Medicine." The auxiliary voted to give \$40 to the Community Chest. The auxiliary has been given the permission of the Bexar County Medical Society to use its club room, the Pıll Box, once a month for parties for soldiers in service. Invitations have been extended to more than three hundred physicians in the army and their wives to participate in the activities of the Bexar County Medical Society and auxiliary.

Capt. Martin Adler, from the Air Corps Basic Flying School, Pottsboro, addressed the Grayson County auxiliary, recently, at Denison, on "The Cause of Rejection of Draftees and What Can Be Done About It." President Mrs. Lipscomb announced that the theme of the programs for the year would be the doctors' wives and national defense.

The Tom Green eight county auxiliary met on January 5 in the home of Mrs. Aubrey L. Lewis, San Angelo, with eight members and two visitors present. Mrs. Mildred M. Campbell, area recreation supervisor of the WPA, spoke on "Soldiers' Recreational Problems."

### West Virginia

The Woman's Auxiliary to the McDowell County Medical Society met, recently, at the Appalachian Building in Welch. Mrs. H. P. Evans, president, called the meeting to order, and Mrs. Welch England, state president, spoke on "Nutrition and a World Crisis." A motion was carried to donate \$10 to the Crippled Children's Society. The Hygcia Committee reported twenty-five subscriptions for the schools.

The Woman's Auxiliary to the Raleigh County Medical Society met recently at Beckley. Mrs. E. Newton DuPuy, president, presided. There were thirty-three members and guests

present. Miss Mary Virginia Gill, executive secretary of the Raleigh County Tuberculosis Association, spoke on the tuberculosis program. Dinner was served and then several tables of bridge were formed.

### Wisconsin

The Winnebago County medical auxiliary met recently at Oshkosh and elected the following officers: president, Mrs. W. N. Linn; president-elect, Mrs. G. C. Owen; secretarytreasurer, Mrs. E. B. Williams; parliamentarian, Mrs. J. W. Lockhart. A report on the national session in Cleveland in June was given by Mrs. Marvin Steen, who attended as a delegate. Mrs T. D. Smith of Neenah reported on the state meeting held in Madison in September.

The Rock County auxiliary has been active in placing copies of Hygeia in homes, schools and libraries and in carrying out philanthropic projects. The Janesville group has worked for the benefit of Mercy Hospital and the Beloit members for the municipal hospital. All have cooperated in serving Pineliurst, providing gifts for all patients at Christmas time and offering entertainment from time to time.

The auxiliary to the Winnebago County Medical Society decided to place Hygeia in beauty parlors in Oshkosh, Neenah and Menasha.

Nineteen members met at the home of Mrs. Henry Peters Oconomowoc, for the meeting of the Waukesha County medical auxiliary. The annual election resulted as follows: president, Mrs. T. H. Nammacher, Oconomowoc; president-elect, Mrs. J. C. Frick, Waukesha; vice president, Miss Hertha Voje, Oconomowoc; secretary, Mrs. Floyd W. Aplin, Waukesha, and treasurer, Mrs. W. H. Oatway, Waukesha. Reports of the state meeting hold in Medicary was given by Mrs. Oatway. state meeting held in Madison were given by Mrs. Oatway, delegate, and Mrs. W. T. Murphy, alternate.

A former national and state president of the auxiliary, Mrs. R. E. Fitzgerald, Wauwatosa, spoke to the Rock County auxiliary recently. Mrs. Fitzgerald, who is also international president of Gamma Phi Beta sorority, is serving as National Parliamentarian of the Auxiliary to the American Medical Association. She stressed study clubs as a project, suggesting a program of legislation, the nutrition campaign of the American Medical Association and book reviews. Guests at the meeting included Mrs. E. P. Bickler, Milwaukee, state treasurer; Dr. Jessie Allen, Beloit, who organized the county auxiliary; Dr. J. R. Harvey, Footville, vice president of the Rock County Medical Society, and Dr. W. T. Clark, councilor for this district.

^{2.} Rosensohn, Meyer: In the Matter of Pay for Doctors in Municipal Dispensaries, New York Medical Week 17:4 (Aug. 27) 1938.

^{1.} Kratz, F. W.: The Present Status of Full Time Local Health Organization, Pub. Health Rep. 57: 194 (Feb. 6) 1942.

# Medical News

(PHASICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITY TIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH )

### ALABAMA

Changes in Health Officers - Dr Caroline H Callison, Chatom, has been named health officer of Coosa County to succeed Dr William H Goff, Rockford, who resigned to enter private practice, it is reported—Dr Isaac N Jones, Greensboro, has been appointed in charge of the Hale County health unit, succeeding Dr Eldridge T. Norman, Greensboro, who resigned to resume private practice

Center for Poliomyelitis .- A new infantile paralysis center was recently opened at the Tuskegee Institute, forming a special unit of the John Albion Andrew Memorial Hospital It is a three story fireproof building equipped with modern facilities, including a gymnasium with treatment pool, whirlpool arm and leg baths and electrotherapeutic machines, plaster, brace fitting and physical therapy rooms, sun deck, patient wards and laboratory The center was made possible through a grant of more than \$172,000 from the National Foundation for Infantile Paralysis. A recent grant of \$30,000 will assist in the operation of the new unit

### ARKANSAS

Building for State Board of Health. - The Arkansas State Board of Health is erecting a five story building in Little Rock at a cost of \$150,000. The building is located on the west side of the state capitol grounds in accordance with the master plan of the state planning board for the beautification of the capitol grounds. The structure is fireproof, of reinforced concrete and faced with white limestone.

District Meeting.-The Fifth Councilor District meeting of the Arkansas Medical Society was held at the Garrett Hotel, El Dorado, recently, with the following speakers Drs. Robert Lyle Motley, Memphis, Tenn, on "Diagnosis of Digestive Disturbances and Their Physiologic Explanation", Raphael Eustace Semmes, Memphis, "Rupture of the Intervertebral Disk as the Common Cause of Low Back Pain and Sciatica," and Charles B Huggins and William W. Scott, Chicago, "Studies on Prostatic Cancer."

### CALIFORNIA

State Medical Meeting, May 4-7.—The California Medical Association will hold its annual meeting in Del Monte, May 4-7, under the presidency of Dr. Henry S. Rogers, Petaluma Included among the out of state speakers will be Dr. Wallace H Cole, Minneapolis, on "War Treatment of Frac-Guedel, Los Angeles, "Controlled Respiration", Dr. Carl M. Peterson, Secretary, Council on Industrial Health, American Medical Association, Chicago, "Wartime Problems in Industrial Medicine," and Dr Wallace M. Yater, Washington, D. C., 'Diseases of the Heart Amenable to Surgical Treatment' Among California physicians participating in the program will be

Dr John Homer Woolsey Woodland Soft Tissue Wounds Gas Gan

proposed Robert Wooding Soft Fische Wounds Gas Gan green and Tetanus

Dr Lowell A Rantz, San Francisco, Sulfonamide Medication

Dr Alfred C Reed, San Trancisco Autritional Enteritis as a Deficiency Syndrome

Dr Cinton H Thenes, Los Angeles, Present Status of Vitamin P Dr Leonid S Cherney, San Francisco New Transverse Low Abdominal Incision

Dr Arthur J. Hunnicutt. Oakland, Fluid Imbalance in Surgers - A. I our Point Plan of Misck.

Dr lames W Racascroft, San Diego Treatment of Incomplete and Inestable Abortions Dr Eram H Ppstein Oakland Photosensitization in the Treatment of Programs

Dr Wilham T Grant Los Angeles Chineal Diagnosis of Cerebellar Injuries

A number of symposiums will be included on the program, among which will be one on military surgery with the following speakers. Drs. Cole, "Present Status of the Treatment of Poliomyclitis", Frank S. Dolley, Los Angeles, "Chest Injuries in War., Lewis A. Alesen, Los Angeles, "Traumatic Shock and Hemorrhage," and Don D. Weaver, Oakland, "Treatment of Burns." Representatives of the medical corps of the army with the part the greent appropriate programs. and navy will be on the general program

### **GEORGIA**

The Fischer Awards.—The L C. Fischer award of \$100 for the best written paper presented before the Fulton County Medical Society showing the most original research went to Drs Carter Smith, Henry Clifford Sauls and Charles F Stone Jr for their paper entitled "Subacute Bacterial Endocarditis Due to Streptococcus Viridans." A similar prize for research was won by Drs. Emmett D Colvin, Rudolph A Baitholomica and William H Grimes Ir. on "Interpretation of Blood Pressure Behavior During Pregnancy and the Puerperium." All are from Atlanta

Laboratory for Diseases of Eye—The Eye Pathological Laboratory of Grady Hospital, Atlanta, was recently opened The unit occupies space in the Gray Clinic of the hospital and will be available to all ophthalmologists. It is the gift of F Montgomery, Atlanta, an alumnus of Emory Um-Drs F Phinizy Calhoun Jr and William T Edwards Mr L F versity Jr are in charge of the laboratory According to the Bulletin of the Fulton County Medical Society the laboratory is the only one of its type in the Southeast and is one of about nine of its kind in the country

Railway Surgeons' Meeting.—The twenty-second annual meeting of the Surgical Association of Atlanta and West Point Railroad Company, the Western Railway of Alabama and Georgia Railroad was held at the Atlanta Biltmore Hotel, March 26 Major Dwight M Kuhns, U S Army, Medical March 26 Major Dwight M Kuhns, U S Army, Medical Corps, in charge of the fourth corps area laboratories, Foit McPherson, was the guest speaker on "Measures Being Taken to Protect Troops from Diseases and Infections Following Wounds" Other speakers were Drs Harry L Cheves, Union Point, "Traumatic Abdomen", Lewis S Patton, Athens, "Injuries of the External Eye and Uses of the Sulfonamides in Their Treatment"; Charlie N Wasden, Macon, "Concussions of the Brain", William Howard Hailey, Atlanta, "Dermatoses in Railroad Workers," and Wallace H Clark, LaGrange, "Injuries to the Genito-Urinary Tract" Dr. Floyd W McRac, Atlanta, gave the presidential addiess gave the presidential address

### ILLINOIS

Graduate Conference in Belleville. - The Missouri and Illinois Post-Graduate Committees sponsored a joint clinical conference in Belleville, April 9 Included among the speakers

Dr Cyrus E Burford, St Louis Urology—Diagnosis and Significance of Hematuria Edmund U Cowdry, Ph D. St Louis, Gerratrics Dr. Walter M Whitaker, Quincy, Ill, The Role of Fluid Balance in Dr Watter Pediatrics

Pediatrics

Dr. Francis J Braceland, Chicago Psychiatry—Recognition of the
Psychopathic State in the Selected

Dr. Harold M Camp, Monmouth

Col. Paul G Armstrong, Springfield

Tumor Diagnostic Service. - The state department of health has established the third state subsidized tumor diagnostic service at St. Anthony's Hospital in Rockford. Similar services were established at the Methodist Hospital of Central Illinois, Peoria, and at the Memorial Hospital in Springfield Although the state division of cancer control directs the diagnostic service, the actual management will be the responsibility of the consulting hospitals, which are chosen by the local county medical society. The tumor diagnostic services are designed to provide for the general practitioner a competent consultation service without cost for his suspected cancer cases. No treatment is rendered in any case.

### Chicago

Portrait of Dr. Anna Lapham-Exercises were held on March 17 to dedicate a portrait of Dr. Anna Ross Lapham, assistant professor of obstetries, Northwestern University Medical School Dr. Lapham graduated at Northwestern University Woman's Medical School in 1898. She joined the staff of Northwestern University Medical School in 1919 as a demonstrator. In 1922 she became instructor and in 1926 became the reference of the staff of Northwestern University Medical School in 1920 as a demonstrator. assistant professor. Although she retired in 1929, her name is still included on the list of active instructors. Dr. Lapham was the first woman to reach the rank of assistant professor at the medical school

Dr. De Lee's Will.-In the will of the late Dr. Joseph B De Lee bequests provide for establishment of the Joseph Bolivar De Lee Endowment for Medical Education at Northwestern University Medical School and a foundation bearing his name for teaching and research of Northwestern University Medical School and its climes. The first was provided for with annuity funds of \$10,000 arranged for in 1923 to take effect on his death and the second fund of \$100,000 was created in 1929.

Another \$5,000 goes to the Chicago Maternity Center, which Dr. De Lee founded. The will further stipulates that if \$25,000 remains after specific bequests, a fund to give an annual award for the greatest contribution to obstetrics is to be established in honor of Dr. De Lee's late brother, Solomon Theron De Lee.

### KANSAS

New Executive Secretary. - Mr. Oliver Ebel, for five years chief probation officer of the Sedgwick County Juvenile Court, Wichita, has been appointed executive secretary of the Sedgwick County Medical Society. Mr. Ebel succeeds Mr. Jack F. Austin, Wichita, who recently went into army service.

### MARYLAND

State Medical Meeting in Baltimore.—The Medical and Chirurgical Faculty of the State of Maryland will hold its one hundred and forty-fourth annual meeting in Baltimore, April 28-29, under the presidency of Dr. Robert Lee Hall, Pocomoke City. Dr. Cyrus C. Sturgis, Ann Arbor, Mich., will deliver one Trimble Lecture on "Syndromes Associated with Leukopenia," and Dr. John Homans, Boston, will give one on "Vasomotor and Other Reactions to Injuries and Venous Thrombosis." There will be a panel discussion on the health of the state as revealed through selective service and army examinations. On Wednesday a round table luncheon will feature a wide range of medical topics. Other speakers on the program will include:

Dr. Hall, Changes in the Practice of Medicine in the Counties of Maryland in the Last Forty Years.
Dr. Thomas B. Aycock, Baltimore, Causalgia.
Dr. Thomas Nelson Carey, Baltimore, Rocky Mountain Spotted Fever.
Dr. Nels A. Nelson, Baltimore, Syphilis in Industry.
Dr. Kenneth L. Pickrell, Baltimore, Local Treatment of Burns.
Dr. Edgar J. Poth, Baltimore, A New Intestinal Antiseptic—Succinyl Sulfathiazole.
Dr. Thomas P. Sprunt, Baltimore, Blood Plasma Proteins.
Dr. Caroline C. Bedell Thomas, Baltimore, Rheumatic Fever.
Dr. Isaac Ridgeway Trimble, Baltimore, Sympathectomy in Peripheral Vascular Diseases.

Dr. Laroune C.

Dr. Isaac Ridgeway Trimble, Battane...
Vascular Diseases.
Dr. Henry F. Ullrich, Baltimore, Ununited Fractures.
Dr. Maxwell M. Wintrobe, Baltimore, Vitamin Deficiencies.
Col. Leon A. Fox, M. C., U. S. Army, chief health officer, Caribbean Division, The Doctor in War.

Evans Memorial Lecture.—Dr. William Dock, professor of pathology, Cornell University Medical College, New York, delivered the Robert Dawson Evans Memorial Lecture in the Evans Memorial Auditorium, Boston, March 27. His subject was "Albuminuria and Associated Renal Changes."

New Secretary of State Board. - Dr. Harold Quimby Gallupe, Waltham, has been elected secretary of the Massachusetts Board of Registration in Medicine to succeed Dr. Stephen Rushmore, Boston, who resigned to become dean of Middlesex University School of Medicine, Waltham. Dr. Gallupe graduated at Harvard Medical School, Boston, in 1918.

Changes at Harvard Medical School.-John H. Mueller, Ph.D., associate professor of bacteriology and immunology, has been named professor of bacteriology and immunology at the Harvard Medical School, Boston, effective July 1. He will also take charge of the department at the medical school and also take charge of the department at the medical school and at the school of public health. The following men were named to associate professorships: Dr. Fuller Albright, now assistant professor of medicine; Dr. Allan M. Butler, now assistant professor of pediatrics, and Dr. Hiram H. Merritt, now assistant professor of neurology. Dr. Frederick J. Stare, who graduated at the University of Chicago School of Medicine in 1941, has been appointed assistant professor of nutrition.

### MICHIGAN

Change in Health Officers .- Dr. Sue Hurst Thompson, West Branch, has resigned as director of district health unit number 2 comprising the counties of Ogemaw, Oscoda, Iosco and Alcona. Dr. Harold W. Seff, West Branch, is the acting director, pending a permanent appointment in June.

The Hickey Lecture .- Dr. Eugene P. Pendergrass, professor of radiology. University of Pennsylvania School of Medicine, Philadelphia, delivered the sixth annual Hickey Memorial Lecture before the Wayne County Medical Society on April 6. His subject was the roentgen diagnosis of pneumonocomiosis

Personal.—Dr. Franklin H. Top has been appointed by the Detroit board of health as medical director of the Herman Kiefer Hospital, Detroit.—Dr. Carey P. McCord, Detroit, has been elected to extramural lectureship on occupational diseases at the new School of Public Health of the University of Michigan App. Appear of Michigan, Ann Arbor.

Society News. Dr. Chevalier L. Jackson, Philadelphia, recently discussed "The Bronchoscope and Its Role in Modern Medicine" before the Wayne County Medical Society, Detroit. Dr. Richard H. Overholt, Brookline, Mass., also addressed the society recently on "A Common Masquerading Lung Disease." society recently on "A Common Masquerading Lung Disease."
—Dr. Fred J. Hodges, Ann Arbor, recently addressed the Kalamazoo Academy of Medicine in Kalamazoo on "The Cyclotron as a Medical Instrument."—Dr. Vincent J. O'Conor, Chicago, addressed the Muskegon County Medical Society in Muskegon, March 20, on "Urologic Significance of Low Back Pain."—Dr. Samuel F. Marshall, Boston, discussed "Medical and Surgical Treatment of Gastric Lesions" before the Ingham County Medical Society in Lansing, March 17. County Medical Society in Lansing, March 17.

### MISSOURI

Leo Loeb Receives Award. - The St. Louis Medical Society presented its award of merit and gold medal, March 3, to Dr. Leo Loeb, emeritus professor of pathology, Washington University School of Medicine. Dr. Loeb was born in Germany in 1869. From 1889 to 1896 he studied natural science and medicine at the universities of Heidelberg, Berlin, Zurich and Freiburg. He was assistant professor of experimental pathology at the University of Pennsylvania School of Medicine, Philadelphia, from 1904 to 1910, when he went to direct the department of pathology at the Barnard Skin and Cancer Hospital, St. Louis. In 1915 he became professor of comparative pathology at Washington, and in 1924 he became professor of pathology. He served as president of the Society of Cancer Research in 1911 and of the American Association of Pathologists and Bacteriologists, 1914-1915. From 1910 to 1912 he was chairman of the Section on Pathology and Physiology of the American Medical Association. Dr. Loeb's principal contributions through research have been on tissue and tumor growth. In acknowledging the award before the society, Dr. Loeb gave an address entitled "Medicine and the Community."

### **NEBRASKA**

State Medical Meeting in Omaha.—The seventy-fourth annual meeting of the Nebraska State Medical Association will be held at the Hotel Fontenelle, Omaha, May 4-7, under the presidency of Dr. Dexter D. King, York. Guest speakers will

Dr. Henry W. F. Woltman, Rochester, Minn., Postoperative Neuro-logic Complications.
Dr. Marcus H. Hobart, Evanston, Ill., Treatment of Athletic Injuries.
Dr. Benjamin Goldberg, Chicago, The Present Day Tuberculosis
Problem.
Dr. Legge, H. Sloge, Chicago, Bedside, Neurology, for the General

Problem.

Dr. LeRoy H. Sloan, Chicago, Beusiue Accumpance
Practitioner.
Dr. Samuel J. Kopetzky, New York, Experiences in This War.
Dr. William T. Peyton, Minneapolis, Surgical Relief of Pain.
Dr. Rexford L. Diveley, Kansas City, Mo., Emergency Treatment of
Fractures—How to Handle Various Types of Fractures Before They
Are Reduced.

Are Reduced.

Dr. Wyman C. Corydon Cole, Detroit, Establishment of Respiration in the Newborn—Influence of Ether Anesthesia.

Dr. Willard O. Thompson, Chicago, Endocrine Problems in the Male.

Dr. Jacob P. Greenhill, Chicago, Soft Parts Dystocia.

A symposium on chemotherapy will be held on Tuesday afternoon with Nebraska physicians participating. On Tuesday evening a dinner session will be addressed by Mr. J. W. Holloway Jr., Director, Bureau of Legal Medicine and Legislation, American Medical Association, Chicago, on "Medical Licensure in Nebraska."

## NEW YORK

Hospital News.—Jamaica Hospital, Jamaica, recently observed its fiftieth anniversary. One of the features of the celebration was the publication of a book entitled "The Jamaica Hospital, a History of the Institution," written by Dr. Francis G. Riley, Jamaica, for many years director of the department of prology. of urology.

Gastroenteritis Outbreak in Defense Community. About one third of the population was affected in an outbreak of about 1,500 cases of gastroenteritis in February in a village in Delaware County. According to Health News the illness began suddenly and was characterized by vomiting and abdominal pain. There were no fatalities. A large number of the residents of this village and two neighboring communities are employees of the large manufacturing plant working on the defense program. Further study is being made to determine the exact origin of the outbreak.

Symposium on Dental Caries.—Three symposiums on dental caries were sponsored recently by the state medical and dental societies of the state department of health, cooperating with local organizations. The meetings were in Rochester on March 31, Binghamton on April 1 and Albany on April 2. The speakers were Dr. Julian D. Boyd, associate professor of pediatrics, State University of Iowa College of Medicine, Iowa City; Philip Jay, D.D.S., assistant director for oral pathology, University of Michigan School of Dentistry, Ann Arbor, Mich., and Henry Trendley Dean, D.D.S., U. S. Public Health Ser-The symposiums correlated the research which has been carried on recently in the following three channels: the effect of nutrition, the effect of bacteria in the mouth and the effect of the chemical content in drinking water.

### New York City

Hugh H. Darby Joins Borden Company. - Hugh H. Darby, Ph.D., associate, department of biochemistry, of Columbia University College of Physicians and Surgeons, and known for his contributions in vitamin research, has joined the staff of the Borden Vitamin Company for research and development in the production and application of vitamins and hormones. Dr. Darby, a native of Scotland, received his Ph.D. at Columbia in 1928. He is identified as a discoverer of the existence of vitamin D in plant life and for his spectographic research on vitamins A. D and K.

Research Meeting. - The Research Society of the Long Island College of Medicine, Brooklyn, met at the college, April 8, for the following program: Dr. Victor Rudomanski, "Quantitative Study of Plasma and Extracellular Fluid Volume Changes in Some Instances of Dehydration"; Dr. Louis C. Johnson, "A Comparative Study of the Complement Fixation and Flocculation Tests in the Diagnosis of Syphilis," and George H. Paff, Ph.D., and Robert A. Lehman, Ph.D., "A Practical Technic and Design for the Assay of Digitalis on the Embryonic Chick Heart." The Long Island College of Medicine sponsored a symposium on psychosomatic medicine, March 26. The speakers included Drs. G. Canby Robinson, Baltimore, H. Russell Meyers, George Draper, Bela Mittelmann, George E. Daniels and Foster Kennedy.

### NORTH CAROLINA

Health of Indians.—With a total Indian population in the state of 22,690, North Carolina reports an Indian birth rate of 40 per thousand and a death rate of 7.9. More than eight hundred Indian babies are born in the state each year. Indians share in all public health benefits in North Carolina on the same basis as other citizens. During one year 246 mothers visited the maternal and infancy clinics for antepartum advice. During the same year there were 47 infant visits to clinics. There were 123 Indians on the crippled children's register of the city board of health receiving orther with the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the state board of health receiving orthopedic attention. Three field health workers follow up these cases and make home visits.

### PENNSYLVANIA

Tuberculosis Society Observes Fiftieth Anniversary. The Pennsylvania Tuberculosis Society will observe its fiftieth anniversary at a dinner meeting in the Bellevue-Stratford Hotel, Philadelphia, May 7, during the annual session of the National Tuberculosis Association, May 6-9. The Pennsylvania group claims to be the first voluntary tuberculosis society in the country, having been formed in 1892 as the Pennsylvania Society for the Prevention of Tuberculosis.

Immunization Project .- At a recent meeting of the board of trustees of the state medical society, Drs. Alexander Hamilton Stewart and John Moore Campbell Jr., Harrisburg, representing the state department of health, asked cooperation in a proposed comprehensive program of immunization of children over the age of 9 months against smallpox, diphtheria and tetanus. They stated that it was the wish of the department to have these immunizations performed by practicing physicians rather than in state clinics, with the department of health continuing to supply the vaccines and toxoids needed. The board of trustees of the state society endorsed the recommendation and urged active cooperation by the membership of the society.

### Pittsburgh

Society News.—The Allegheny County Medical Society devoted its meeting, March 17, to a symposium on diseases of the genitourinary tract; the speakers were Drs. Edward J. McCague, James J. Lee, Joseph G. Moore and John L. Hamilton. The society devoted its February 17 meeting to a symposium on malignant lesions of the colon. The speakers were position on manginant resions of the coron. The speakers were Drs. John D. Garvin, Leo P. Sheedy, John W. Stinson, Joseph W. McMeans and Kenneth M. Day.—Dr. Harold I. Lillie, Rochester, Minn., discussed "Vasomotor Rhinitis: Résumé of Labyrinthectomy Operation" before the Pittsburgh Otological Society on March 25.

### SOUTH DAKOTA

State Medical Meeting in Sioux Falls.—The sixty-first annual session of the South Dakota State Medical Association will be held in Sioux Falls, May 13-15, under the presidency of Dr. Bertrand M. Hart, Onida. The tentative program lists the following consistency. the following speakers:

Dr. Edward L. Tuohy, Duluth, Minn., The Treatment of the Patient

Dr. Hewitt B. Hannah, Minneapolis, Shock Treatment in Mental Disease: Insulin, Metrazol and Faradism.

Dr. Samuel E. Sweitzer, Minneapolis, Common and Obscure Skin

Dr. Samue Diseases.

Dr. Leo G. Rigler, Minneapolis, X-Ray Diagnosis.

Dr. Herbert Z. Giffin, Rochester, Discussion of Iron, Liver Extract and Vitamins in the Treatment of Various Types of Anemia.

Dr. Arnold Schwyzer, St. Paul, Abdominal Pain and Its Local Significant of Various Types of Anemia.

An interprofessional program will be held on Thursday afternoon in the form of a symposium covering the "Relationship of the Medical, Dental, Pharmaceutical, Nursing and Hospital Associations to the National Defense Program.

### TEXAS

State Medical Association Meeting in Houston .-- The seventy-sixth annual session of the State Medical Association of Texas will be held at the Rice Hotel, Houston, May 11-14, under the presidency of Dr. Neil D. Buie, Marlin. Out of state speakers will include:

Dr. Leonard G. Rowntree, colonel, U. S. Army, Washington, D. C., Medical Aspects of Selective Service.
Dr. Chester A. Stewart, New Orleans, The Feeding of Infants and Children.

Children.

Dr. Tom D. Spies, Cincinnati, Diagnosis of Deficiency Diseases.

Dr. Fred J. Hodges, Ann Arbor, Mich., The Responsibility of the Roentgenologist in Gastrointestinal Diagnosis.

Dr. Edwin C. Hamblen, Durham, N. C., Some Complications and Untoward Responses to Endocrine Therapy.

Dr. Elexious T. Bell, Minneapolis, Nephritis and Nephrosis.

Dr. Otto Jason Dixon, Kansas City, Mo., Ear Complication in Relation to General Practice.

Dr. Vilray P. Blair, St. Louis, Cancer of the Mouth.

Dr. John H. Musser, New Orleans, The Heart That Grows Old.

Dr. Louis A. Buie, Rochester, Minn., Important Facts Concerning the Diagnosis and Management of Lesions of the Terminal Colon.

Dr. Thomas L. Pool, Rochester, Lesions of the Bladder and Urethra Occurring in Women.

Dr. Edward N. Smith, Oklahoma City, The Treatment of Nausea and Vomiting of Pregnancy.

Dr. Arthur E. Hertzler, Halstead, Kan., The Principles of Abdominat Drainage.

Other societies meeting during the state session include the Texas Railway and Traumatic Surgical Association, Texas State Heart Association, Texas Association of Medical Anesthetists, Texas Chapter of the American College of Chest Physicians, the Conference of County and City Health Officers of Texas and the woman's auxiliary to the state medical association.

### VIRGINIA

Graduate Course in Industrial Hygiene and Medicine. —A concentrated course for physicians who are going into the field of industrial medicine is now being conducted at the Medical College of Virginia, Richmond, in cooperation with the bureau of industrial hygiene of the state health department, the industrial commission of Virginia, the state department of education and the medical departments of several industrial industries in and around Richmond. Emphasis is placed on the actual practical experience with medical directors in industry.

### WASHINGTON

Personal. - Dr. Robert S. Hamilton has been appointed health officer of Clallam County and the city of Port Angeles, succeeding Dr. Alfred E. Eyres who recently resigned to take additional work in public health.—Dr. Calvin L. Longstreth has been appointed health officer for Bellingham.

Society News.—The Spokane County Medical Society was addressed, April 9, by Drs. Hale A. Haven, Seattle, on "Neurosurgical Treatment of Angina Pectoris: Physiologic and Anatomic Factors with Clinical Results," and Joel W. Baker, Seattle, "Physiology and Surgery in Duodenal Ulcer."—The Spokane Surgical Society held an all day session on April 25 with Dr. Surgical Society held an all day session on April 25 with Dr. Richard B. Cattell. Boston, as the guest speaker; at the banquet in the evening he discussed "Selection of Operation for Carcinoma of the Colon and Rectum."——At a meeting of the King County Medical Society in Seattle, March 16, the speakers were Drs. Goodrich C. Schauffler, Portland, Orc., on "The Female Genitalia in Childhood and Infancy," and Harold G. Trimble, Oakland, Calif., "Tuberculosis—The General Practitioner's Problem."

### GENERAL

No Examination in Dermatology.-Because of an insufficient number of candidates, the American Board of Dermatology and Syphilology announces that no examination will be held in June at the time of the meeting of the American Medical Association. An examination will probably be held in the fall, notice of which will be published later.

Cancer Campaign Opens.-The American Society for the Control of Cancer, New York, launched its sixth annual educational campaign against cancer, April 1, under the slogar "Conquer Fear, Delay and Ignorance."

The campaign aims to emphasize the fact that cancer is curable, to make known to every one the early symptoms by which its onset may be recognized and to point out that to effect a cure treatment must begin promptly after a diagnosis of cancer.

Prize Winners in Safety Contest. - Oklahoma was the national grand prize winner for states in the traffic safety contest sponsored by the National Safety Council, it was recently announced, and Memphis, Tenn., the winner for cities. Oklahoma won the award because of its record of placing first among all states in the southern division for five consecutive years and Memphis for overcoming the handicap of increased traffic on account of war industries and army movements with the reduction of fatalities by 56 per cent. Two other states and five other cities won first place awards in their divisions of the contest: Oregon in the western division, New Jersey in the eastern; Pittsburgh, Omaha, Manchester, N. H., Fond du Lac, Wis., and Aberdeen, S. D., are the five cities which also won first place awards in certain population groups.

Medical Library Meeting.—The Medical Library Association will hold its annual meeting in New Orleans, May 7-9, under the presidency of Miss Mary Louise Marshall, New orleans. The scientific program will open with a symposium on tropical medicine presented by the following: Dr. George W. McCoy, New Orleans, "Tropical Medicine: Scope and Achievements"; Ernest Carroll Faust, Ph.D., New Orleans, "Amebiasis, a Tropical and Cosmopolitan Disease"; Dr. Mark F. Boyd, Tallahassee, Fla., "Malaria," and Dr. Guy H. Faget, Carville, "The Story of Leprosy in the United States." The annual dinner will be addressed by Dr. Rudolph Matas, professor of general and clinical surgery emeritys. Tulane University fessor of general and clinical surgery emeritus, Tulane University of Louisiana School of Medicine, New Orleans, on "Some Episodes in the Medical History of Louisiana." One session will be devoted to medicine in the Confederacy and another to general reference books of interest to the medical librarian.

Association of the History of Medicine.—The eighteenth annual session of the American Association of the History of Medicine will be held at Chalfonte-Haddon Hall, Atlantic City.
N. J., May 3-5. Dr. Jabez H. Elliott, Toronto, Ont., will deliver his presidential address at the dinner Monday evening on "Observation and Interpretation" and Dr. Hugh H. Young, Baltimore, will give an address in commemoration of the one hundredth anniversary of the first application of ether anesthesia, entitled "Crawford W. Long: The Pioneer in Ether Anesthesia." Among other speakers on the program will be:

Dr. Ernest E. Irons, Chicago, Théophile Bonet. Dr. Benjamin Spector, Boston, Sir Charles Bell and the Bridgewater Dr. Bengar Treatises.

H. Drake, Toronto, The Medical Caricatures of

Treatises.

Dr. Theodore G. H. Drake, Toronto, Line Thomas Rowlandson.

Dr. Maurice S. Jacobs, Philadelphia, Thomas Beddoes and His Contribution to the Treatment of Tuberculosis.

George Urdang, D.Sc. Nat., Madison, Wis., The Mystery About the English Pharmacopeia (1618).

The William Osler Medal will be presented this year to John T. Barrett, A.B., of the Boston University School of Medicine. Dr. Francis R. Packard, Philadelphia, will deliver the Fielding H. Garrison Lecture Monday afternoon on "Medical Case Histories in a Colonial Hospital."

Medical Aid to China.—More than a million dollars will be required during the fiscal year ending April 1, 1943 to maintain and expand medical relief work in China, according to a budget estimate issued by the American Bureau for Medical Aid to China. In addition, United China Relief has been asked to allocate more than a million dollars in the current fiscal year for new projects including the establishment of nutritional, maternity and child health centers and a broad medical education program designed to provide skilled per-sonnel needed in China. The largest outlay of funds will be to the Emergency Medical Service Training School program now being conducted under the direction of Dr. Robert K. S. Lim, Peiping. United China Relief states that the budget estimate does not include a proposed expenditure of \$100,000 for a research program which will be carried out this year, if conditions permit, in cooperation with the Chinese Red Cross

Medical Relief Corps, the Chinese National Health Administration and American specialists. This program would embrace among other things the study of the effect of sulfonamide drugs on important epidemic diseases.

Meeting of Association of American Physicians.-The fifty-seventh annual meeting of the Association of American Physicians will be held in Chalfonte-Haddon Hall, Atlantic City, N. J., May 5-6, under the presidency of Dr. James H. Means, Boston. Among the speakers will be:

leans, Boston. Among the speakers will be:

Dr. Luther Emmett Holt Jr., Dr. Maxwell M. Wintrobe, Anthony A. Albanese, Ph.D., and Landrum B. Shettles, Ph.D., Baltimore, Experimental Amino Acid Deficiencies in Man.

Drs. Frederic M. McPhedran, Edwin L. Lame, Henry P. Close and Edwin S. Cooper, Philadelphia, The Mechanism of Healing of Tuberculosis Cavities.

Dr. Harold W., Jones, Dr. Leandro M. Tocantins, Dr. Lowell A. Erf and Ferdinand L. Munro, Ph.D., Philadelphia, Concentrated Blood Plasma, Intrasternally, in the Treatment of Shock.

Drs. Ralph A. Kinsella, Samuel Rabinovitch and Joseph J. Furlong, St. Louis, Hyposthenia.

Drs. Roy W. Scott and Curtis F. Garvin, Cleveland, Unusual Cardiac Mechanism Associated with Metastatic Cancer Involving the Left Auricle.

Auricle.

Drs. John E. Howard, Lawson Wilkins and Walter Fleischmann,
Baltimore, The Metabolic and Growth Effects of Various Androgens
in Sexually Immature Dwarfs.

Drs. Willard O. Thompson, Norris J. Heckel and Richard P. Morris,
Chicago, Chorionic Gonadotropin: A Potent Stimulator of Growth.

Drs. Wintrobe, Mitchell H. Miller and Richard H. Follis Jr., Baltimore, What Is the Antineuritic Vitamin?

Mead Johnson Award Goes to Dr. Cowgill.-George R. Cowgill, Ph.D., associate professor of physiologic chemistry, Yale University School of Medicine, New Haven, Conn., was presented on April 1 with the \$1,000 Mead Johnson and Company Prize by the American Institute of Nutrition for researches dealing with the B complex vitamins. According to the citation, Dr. Cowgill received the award "for his fundamental contributions through experimental research on the B vitamins, his leadership in interpreting results of research and his influence in promoting advances in this field of knowledge." The prize is given annually to the research worker in the United States or Canada who, in the opinion of judges representing the American Institute of Nutrition, has published the most meritorious work dealing with the field of B complex vitamins or who has made valuable contributions over an extended period of time. Dr. Cowgill was born in St. Paul in 1893. He received his Ph.D. at Yale in 1921. He was on the staff of Stanford University from 1916 to 1917 and went to Yale University Medical School in 1920. He has been assorted the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staff of the staf ciate professor since 1931. Dr. Cowgill is a member of the Council on Foods and Nutrition of the American Medical Association and of the vitamin advisory committee of the U.S. Pharmacopeia. He has served as editor of the Journal of Nutrition since 1939.

Psychiatric Meeting.-The ninety-eighth annual meeting of the American Psychiatric Association will be held at the Hotel Statler, Boston, May 18-21, under the presidency of Dr. James K. Hall, Richmond, Va. There will be sessions devoted to morale and military psychiatry, psychiatry and the U. S. Navy, geriatrics, psychosomatic medicine and schizophrenia. Among the speakers will be:

phrenia. Among the speakers will be:

Dr. Miguel Ozorio de Almeida, director, Laboratory of Physiology, Instituto Oswaldo Cruz, Rio de Janeiro, Brazil, Experimental Epilepsy of the Frog.

Dr. Joseph C. Michael, Minneapolis, Multiple Murders Without Comprehensible Molivation.

Dr. Nathaniel J. Berkwitz, Minneapolis, Electric Subconvulsive Shock Therapy of Psychoses Associated with Alcoholism, Drug Addiction and Syphilis.

Drs. Herbert S. Ripley Jr., Charles A. Bohnengel and Ade T. Milhorat, New York, Personality Factors in Muscle Disease.

Dr. Simon Stone, Manchester, N. H., Nonspecific Therapy of Neurosyphilis.

Drs. Earl D. Bond and Thurston D. Rivers, Philadelphia, Follow-Up Studies in Insulin Shock.

Dr. Edward F. Reaser, Huntington, W. Va., Treatment of Catatonic Stupor with Amyl Nitrite and Physiotherapy.

Drs. Oskar Diethelm and Fred V. Rockwell, New York, A Study of the Psychopathology of Aging.

Drs. Herman I. Wortis and William S. Maurer, New York, "Sham Rage" in Man.

Dr. William A. Horsley Gantt, Baltimore, Measures of Susceptibility to Nervous Breakdown.

Dr. Monday eyening a public meeting will be addressed by

On Monday evening a public meeting will be addressed by Leonard T. Carmichael, Ph.D., president of Tufts College, Medford, Mass., on "The Contributions of Scientific Psychology to the National War Efforts" and Dr. Arthur H. Ruggles, Providence, R. I., "Psychiatric Problems in a Changing World." Tuesday evening there will be a series of round table discussions on alcohol, applications of psychoanalysis to the national emergency, civilian mental health and morale, a special report on experimental data on the unconscious, and military psychiatry. tary psychiatry.

Statement by New York Psychoanalytic Society and Institute.—This organization has published a statement in which are given the principles governing psychoanalytic education in the New York Psychoanalytic Institute and also the nature of the violations of these principles which in recent years have caused disagreement among workers in the institute. These educational principles are as follows:

1. A preparatory personal analysis is the first essential step in the training of every student, since a psychoanalyst must have a clear understanding of his own emotional make-up in order not to confuse his own personality with his therapeutic efforts. In the preparatory analysis the relationship of the student in training to his analyst is the same as that of a patient to a psychoanalyst. It is doubly necessary, therefore, that the preparatory analysis should be conducted in an atmosphere of quiet scientific objectivity, without injecting the student into the midst of any heated controversy, and certainly without enlisting the student as an ally in any dispute.

2. Once the student is allowed to undertake the analysis of patients, he is encouraged to conduct these analyses under the supervision of instructors who represent varying theoretical and

technical points of view.

3. Intermediate and advanced students must have and are given an opportunity to attend seminars for the presentation and discussion of all points of view. It is an injustice to students to allow them to come under the exclusive influence of any single attitude.

4. New theories and clinical findings should first be presented not to elementary students but at scientific meetings of the society, where they can be critically evaluated; and modifications in technic should first be tried out only by those who

are already mature in experience.

In recent years, the statement says, the educational committee of the society and institute came to realize that the basic principles referred to were being violated and that the training of certain groups of students was not meeting the requirements of the institute. It is pointed out in the statement (1) that increasing confusion was revealed among elementary students, together with an unscientific tendency to form groups around the persons of individual instructors and to reject the ideas of others with scant hearing; (2) a survey of the distribution of students disclosed that the scope of training was being circumscribed in the case of some students, who remained almost entirely under a single theoretical point of view through each successive stage of their instruction; (3) that in certain instances the relationship of teacher and student was being used as an opportunity to gather together a band of disciples under the pretext of "academic freedom"; (4) students were in some instances encouraged to make radical technical departures from established procedures which they had not yet mastered.

Direct action on these problems was avoided over a period of years in an effort to settle the controversy by the gradual process of scientific education, but these efforts were frustrated. It finally became the duty of the institute to correct the situation, and in April 1941 the educational committee recommended that "Dr. Horney's teaching be limited to lecturing." This recommendation was submitted to the floor of the society and was passed "by an overwhelming majority." The instructor resigned and this was followed by the resignation of four adherents and by the withdrawal of fourteen students. At that time there were eighty-eight members of the New York Psychoanalytic Society and Institute and one hundred and ten students.

The group which withdrew has organized a society under the name of "The Association for the Advancement of Psychoanalysis" and a training institute, which it calls the "American Institute for Psychoanalysis." Since the name of the new group may be a source of confusion to the outside world, and since it takes exception to the "unfounded allegations" which have been advanced as the occasion for these steps and because many questions have been addressed to the society indicating that this situation affects the public interest, the New York Psychoanalytic Society resolved to issue a statement.

The statement points out that for many years the institute carried on its educational activities in an informal fashion, but when the student body grew to more than a hundred the casual arrangements no longer functioned smoothly. A review was made of the records of the student body, and a reorganization of the curriculum was undertaken, based on the students' replies to questionnaires and a study of methods used in other psychoanalytic institutes. The curriculum was divided into a minimum of three years of work and the courses which had been informally considered as essential became formal requirements, additional required courses and electives were provided, and

many new instructors were given an opportunity to teach. A few members of the teaching staff whose methods and theories differed from those of the majority immediately voiced their fear that the reorganization would be used as an opportunity to exclude them from teaching. The dissident group continued to claim that it was the object of unfair discrimination, and these charges after being examined repeatedly by different members and by appropriate committees were finally brought to the floor of the society.

The New York Psychoanalytic Society and Institute is said to be the only organization for training in psychoanalysis chartered by the University of the State of New York and the only institute in New York State recognized for such training

by the American Psychoanalytical Association.

### FOREIGN

Public Health Under Hitler's Rule.—Typhus has been reported in North Norway, and compulsory vaccination has been ordered in districts liable to infection. According to the Szenska Dagbladet, 10,000 people have been vaccinated against typhus and smallpox. The district commissioner of Riga has forbidden all public gatherings in order to prevent the spread of typhus, according to the Stockholm Tidningen, February 17.

February 22, and six classes in one school were to have been closed until the children had been deloused. The home secretary has decided, according to the Berlingske Tidende, Copenhagen, to introduce legislation providing for compulsory delousing. Typhus has entered central Europe as a result of the Russo-German war, and, according to the Aftonbladet, Stockholm, February 24, has entered Denmark from her warring neighbor. The German minister of health, who visited Copenhagen in January to lecture about public health, said that a line had been drawn in the cast "over which the lice could not advance," but it is presumed that the lice reached Germany before this line was established. A medical officer at Malmoe believes that the danger of typhus infection in Sweden via Denmark is negligible owing to the reduction in traffic. The appearance of typhus at such Jutland towns as Aarhus, Randers and Aalborg is considered to be due to the large German garrisons there, which are periodically relieved. The Aalborg public health committee has asked the home office, according to Boersen, Copenhagen, February 14, to authorize the compulsory delousing of infested persons and also for compensation for damage caused to property by the delousing process. There is said to be real danger of typhus in Aalborg.

According to Lyons National, February 19, official communiqué number 86 stated that the German authorities were contemplating the repatriation of prisoners who were students in medicine, pharmacy and dental surgery. Those in these categories must obtain certificates that they were bona fide students before the armistice from the faculty of medicine concerned and must be of lower rank than surgeon sublicutenant. Application for certificates should be made to the Secretariat of State for War, Medical Corps Section, Royat, for the non-occupied zone, and to the Secretariat des Services de la Santé, 28 Avenue Frieland, Paris, for the occupied zone. Students of chemistry and physics were not included in the category. Relatives were reminded that the Germans were only considering the repatriation of these prisoners, but it would be as well to comply with the formalities required straightaway.

Aftonbladet, Stockholm, February 24, reports from Berlin that compulsory service has been introduced in the Ostland for doctors and nurses. Refusals to obey this order are punishable with imprisonment or fines.

### CORRECTIONS

Sulfathiazole and Prophylene Glycol.—In a communication to the editor entitled "Propylene Glycol a Menstruum for Sodium Sulfathiazole" in The Journal, April 11, page 1317, the word "sodium" in the title should have been omitted. Dr. Fredrick F. Yonkman, who with others signed the letter, writes that he hopes that no attempts may be made to dissolve sodium sulfathiazole instead of sulfathiazole in propylene glycol.

Dr. Luckhardt Not Chairman of Physiology Department.—A news item in The Journal, March 14, page 907, referred to Dr. Arno B. Luckhardt as professor and chairman of the department of physiology, University of Chicago, The School of Medicine. Dr. Luckhardt is professor of physiology and not chairman of the department. He is, however, chairman of the administrative committee of the department of physiology.

# Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 7, 1942.

# Physicians Who Became Distinguished Politicians

The Right Honorable Sir Earle Page, minister representing the government of Australia in London, was a surgeon before he became an Australian statesman. In the presence of a distinguished audience, which included visitors from Australia and Canada, he was admitted to the honorary fellowship of the Royal College of Surgeons of England. At the ceremony the president of the college, Sir Alfred Webb-Johnson, said that the council decided to confer this distinction partly because of Page's services to surgery and partly because of the honor he had brought to the profession by his services as a statesman. From the time of Aristotle the hazardous path of politics had attracted many physicians. Several had achieved distinction, for, as sound treatment can be planned only after correct diagnosis, so can sound policy be formulated only in the light of knowledge of the facts. In the British Empire we may be proud of the record of many physicians who have followed a political career. Walter Foster, Christopher Addison, Auckland Geddes and Walter Elliot have held high ministerial office at home. Charles Tupper was prime minister of Canada, and Starr Jameson in South Africa. Godfrey Huggins is prime minister in Southern Rhodesia. In France that sturdy patriot Clemenceau, who today again might have "fired the soul of France," was a medical man, but so was Marat and so was the advocate of the humane killer, Dr. Guillotin.

Addressing Sir Earle Page, the president said "We recall that in the last war you gave splendid service in a busy casualty clearing station. In this war you are one of a team charged with the extirpation of the most dreadful scourge that has ever beset mankind, and for that scourge will be required the most radical excisional operation ever performed. For such a task it is fitting that you should be armed with what is regarded as the highest surgical diploma obtainable."

Replying, Sir Earle Page said that surgical training was most valuable for political life. "The most needed and least common thing in politics is diagnosis before treatment. Too often political treatment is empirical. A huge poultice is clapped on the cancer to hide it from the public instead of doing a complete excision."

# The Empire Rheumatism Council

The fifth annual report of the Empire Rheumatism Council states that, though the war has delayed, it has not thwarted its plans. The large measure of attention it has won for a long neglected problem of public health and, in particular, the good progress last year is reason for reassurance. The publication early this year of "Rheumatism-A Plan for National Action" brought a notable awakening of public interest in the serious lack of facilities for effective treatment of rheumatic disease. The task is still to be faced of persuading the community, working through the appropriate authorities, to take action. Several favorable facts in regard to the provision of effective means of treatment are to be recorded. The Carnegie Dumferline Trust has approved of action taken in that town, and a bequest has been received toward the cost of a hospital or clinic in Aberdeen. The treatment centers in the United Kingdom continue their work, and the demand on their services shows how much they are valued. But the position still remains that only a small proportion of sufferers can obtain in the early stages the right diagnosis and the right treatment, which would save a great proportion from becoming disabled.

### The Good Health of London

The report for 1940 of Dr. W. Allen Daley, medical officer and school medical officer for London, shows that in spite of the war the health of London has been good. The vast public health department continued not only to provide care and attention for the sick who applied to its hospitals but also carried on all its activities for the prevention of disease. No case of smallpox was notified during the year, and there has been none since June 1934. There was no epidemic of infectious disease. The number of cases of typhoid was only 3 per week. But the number of cases of cerebrospinal fever was increased in comparison with the previous year, 151 deaths against 34. The 1940 maternal mortality was 1.98 per thousand live births. The deaths from tuberculosis showed little variation from 1939, 3,005 against 2,952. However, the incidence in 1940 was greater than the figures indicate, because there has been a wartime reduction in the population of London in consequence of evacuation. The casualties from air raids did not reach the number anticipated, for which hospital preparation had been made.

### CHILDREN STOOD THE AIR RAIDS WELL

The number of children of school age still in London at the beginning of 1940 was 180,000; at the end of the year, 85,000. All children about to leave school were examined so that their parents might be advised of any medical reason why certain employments would be unsuitable, and this is the first report to give information on the contraindications. Of 7,395 boys about to leave, 90 per cent were fit for any occupation; of 7,751 girls, 89 per cent. The biggest groups of contraindications were in work involving eyestrain (boys 4.44 per cent, girls 5.29) and in work requiring acute distant vision (boys 4.49 per cent, girls 4.98).

### Thinner Books

The war has produced a great reduction in the supply of paper. Much of the raw material for making paper is imported, and shipping space is required for the more important munitions. Paper is rationed and medical journals have had their supplies reduced to half that of their prewar use. A book production war economy agreement has been voluntarily adopted by the publishers to cooperate in the economic use of materials. It is held to be a far better method than the imposing of restrictions by the government, which might be ill conceived and not based on correct knowledge of technical details. Never before in the history of books has it been necessary to regulate the format. It has been suggested that books should be standardized, but there is so much individuality in their making that this would be detrimental. Publishers have to work on a basic ration of paper. The result of the agreement is that books will be thinner and must conform to the typographic standards laid down and to the maximum paper specification. The public is asked to realize that, although the books are thin, they contain just as much reading matter and are just as costly to produce.

# Status of Women Physicians in the Air Force

Under a new order from the Air Ministry, women medical and dental officers in the Women's Auxiliary Air Force are authorized to attend men as well as women. Previously their duties were confined to members of the Women's Auxiliary Air Force and they were employed only at the receiving and training centers of the force. The order also grants women equal status in seniority and rank as professional men in the air force. Most of the doctors and dentists of the Women's Auxiliary Air Force will be posted to stations where both men and women are employed, and for the first time women will have the opportunity of becoming station senior medical officers. Until now a distinction has been made between the duties of men and of women holding similar appointments.

### PALESTINE

(From Our Regular Correspondent)

Feb 28, 1942

### In Wartime

We can take as an example The war taught us economy Kupat Holim, the workmen's sick fund of the General Federation of Jewish Labor in Palestine, an institution tendering medical aid to nearly 40 per cent of the Jewish population in the country, some two hundred thousand people Although Kupat Holim put in stocks of medicaments sufficient for the needs of its members for one or two years, the directors were compelled to take strong measures for enforcing the maximum possible economy in the use of medical supplies Detailed instructions were given for the use of medicaments and x-ray All three hundred and fifty physicians employed by Kupat Holim were placed under close supervision of a central control department The medical staff appreciated the seriousness of the hour and saw that any excessive use of a vital medicine may in the future revenge itself both on the patient and on the physician, as supplies may be entirely exhausted. When prescribing a medicine or treatment, the physician has to take into account conditions two years hence. In this manner we have attained a standard where for each hundred visits only seventy-five prescriptions are written out by Kupat Holim The same applies to injections The quantity of physicians x-ray films dispensed monthly to the various x-ray institutes, whether in hospitals or in dispensaries, is calculated by the square centimeter of film. The economy in films was attained not so much by the reduction of diagnostic activities as through using fluoroscopy instead of photographs. An x-ray examination of the lungs, for instance, is carried out as follows. First a fluoroscopy is made, and if a suggestive shadow is discerned in any apex a small photograph is made of that apex. The use of tomographic photographs of the lungs has been confined to serious indications

The question of insulin is serious. We have been compelled of late to forego the considerable advantages of protamine zinc insulin and revert again to plain insulin. An index of all members of Kupat Holim suffering from diabetes was compiled, with an indication of the number of units required by each patient. The supervising department was thus able to estimate the quantity of insulin required for the next two years and prepare sufficient stocks. It was sometimes necessary to order the insulin by air mail, so that it may be received fresh. The use of insulin for purposes other than diabetes was entirely dispensed with. Similar arrangements were made in connection with the use of liver preparations and serums.

Nurses and attendants were advised to economize When the price of a thermometer goes up in the open market from 20 cents to \$2.50, strict economy is called for It is easy to understand the anxiety with which one handles today the x-ray tube, the burner of the quartz lamp and similar apparatus. We have thus reached a stage where after two and a half years of war we are still in possession of sufficient stocks of most of the important medical supplies and instruments to cover our requirements for a lengthy period. There is, however grave anxiety with regard to some products, especially after America's entry into the war.

The foregoing applies in the main to the institutions of Kupat Holim and the Hadassah Medical Organization. The rest of the population is in a much more difficult position.

### PARTICIPATION IN THE WAR EFFORT

Contrary to the miserable condition in which the population of this country found itself in the last war, the present world conflagration found Palestine partly prepared owing to the numerous medical institutions erected such as the Hadassah Medical Organization Kupat Holim the Workmen's Sick Fund

of the General Federation of Jewish Labor in Palestine, Magen David Adom, a first aid society, and municipal hospitals and dispensaries in Tel-Aviv, Haifa and Tiberias Another happy factor was the numerous physicians who during the cruel rule of the ruthless totalitarian régime in Europe, gathered here from the various European countries and found in Palestine a haven of peace When the Jewish national institutions announced a general mobilization, the doctor and the nurse were the first to answer the call, their number attaining many hundreds. Many of these physicians left regular positions in medical institutions, eight from among the Kupat Holim doctors enlisted and their posts are being kept for them. All in all, eighty-five Jewish physicians have joined up and an additional number, three to five times as large, is still waiting to be called up There are large reserves which could still be utilized

The Jewish population has long since completed its first draft of ten thousand men and is now in the course of enlisting the second ten thousand soldiers, together with whom many physicians and nurses are ready and prepared to go wherever they are sent, to the desert, Russia, England and even the Far Last Recently the Women's Palestine Auxiliary Territorial Service was formed, and the required number of women as well as women physicians to serve with such units has already enlisted

### THE HADASSAH MEDICAL ORGANIZATION

A few months before the outbreak of war, Hadassah's long cherished ambition was realized, and the Hadassah University Medical Center in Jerusalem was opened. The center, which has the threefold aim of healing, teaching and research, is composed of the Rothschild Hadassah University Hospital, the Henrietta Szold Hadassah School of Nursing and the Nathan Ratnoff Building, which houses the medical school for postgraduate study and research of the Hebrew University Within its spacious new quarters, equipped with the most up to date facilities, the hospital's services have been expanded and the standard of treatment raised to a high level. The hospital has over three hundred beds and can be enlarged to accommodate five hundred. Attached to it are x-ray, radium and pathologic institutes, bacteriologic, serologic, chemical and metabolism laboratories, an outpatient department and a hospital social service. To be in readiness for emergencies, the Rothschild Hadassah University Hospital has prepared two hundred reserve beds, and, with Hadassah's aid, the hospitals founded by it and now maintained by the local authorities in Tel-Avn, Haifa and Tiberias were able to increase their hospitalization facilities for this purpose. In addition, a number of emergency hospitals were opened and equipped with Hadassah's assistance in various parts of the country. To alleviate the consequences of economic depression, free hospitalization for destitute patients from all parts of the country is provided in the Rothschild Hadassah University Hospital, a district medical service has been established in rural localities and a home medical service in towns, and the hospital social service was introduced in new localities

# Marriages

ARTHUR ALEXANDER KNALP, Virginia Beach, Va. to Miss I lorence Beverly Greene at Elizabeth City, N. C., February 3 Geolge G. Garrett, Shreveport, La., to Miss Una Mary Andries at Grove Hill, Ala. March 1

MULLIN MESTIR, Maryville, Tenn to Miss Mary Ellen Fife of Knoxville, January  $22\,$ 

DANIEL EDWARD BOWERS, Peoria, III, to Miss Virginia Rusk of Tremont recently

DAVID H. LAWRENCE JP to Miss Nelda Markert both of Denver, January 17

# Deaths

James Joseph Walsh € New York; University of Pennsylvania Department of Medicine, Philadelphia, 1895; an Affiliate Fellow of the American Medical Association; formerly dean and professor of nervous diseases and the history of medicine at the Fordham University School of Medicine; consulting physician, Sanatorium Gabriels, Gabriels, N. Y.; author of "Makers of Modern Medicine," "The Thirteenth Greatest of Centuries" (tenth edition published in 1937), "History of Medicine in New York" (published in five volumes), "Medieval Medicine," "Religion and Health" and many others; aged 76; died, February 28, of arteriosclerosis.

Charles Schultze Sample Jr., Passed Assistant Surgeon, United States Public Health Service, Mobile, Ala.; Washington University School of Medicine, St. Louis, 1932; entered the United States Public Health Service as an assistant surgeon Oct. 18, 1934; on the staff of the U. S. Marine Hospital; aged 37; died, March 8, in the U. S. Marine Hospital, Baltimore, of lobar pneumonia following an operation for the removal of a tumor.

Joseph R. Numbers Sr., Boise, Idaho; Eclectic Medical Institute, Cincinnati, 1885; member, past president and secretary of the Idaho State Medical Association; formerly member of the state examining board; fellow of the American College of Surgeons; at one time mayor of Weiser; on the staff of St. Alphonsus Hospital; aged 77; died, February 17.

Charles Knauss Reinke, Jamestown, N. D.; University of Pennsylvania School of Medicine, Philadelphia, 1917; member of the American Psychiatric Association and the New England Society of Psychiatry; served during World War I; aged 50; died, March 12, in the Hospital of the University of Pennsylvania, Philadelphia, of acute yellow atrophy of the liver.

Joseph Oswald Marien, Lewiston, Maine; University of Montreal Faculty of Medicine, Montreal, Que., Canada, 1924; member of the Maine Medical Association; at one time assistant superintendent of the Western Maine Sanatorium, Greenwood Mountain; on the staff of St. Mary's Hospital; aged 47; died, March 6, of glioma of the brain.

William Winn Hartwell, Malden, Mass.; Harvard Medical School, Boston, 1900; member of the Massachusetts Medical Society; served as city physician in Malden for several years and as medical examiner of the city board of health; on the staff of the Malden Hospital; aged 67; died, March 2, of coronary thrombosis.

William Benedict Evans ⊕ Chester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1912; fellow of the American College of Surgeons; served during World War I; aged 56; on the staff of the Fitzgerald Mercy Hospital, Darby, and the Chester Hospital, where he died, February 15.

John Hughes Galbraith € Altoona, Pa.; University of Pittsburgh School of Medicine, 1912; fellow of the American College of Surgeons; served during World War I; orthopedic surgeon, Altoona General and Mercy hospitals; orthopedic consultant, Philipsburg State Hospital; aged 55; died, January 28.

William Napoleon Lynn & Knoxville, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1909; served during World War I; aged 58; on the staffs of the Fort Sanders Hospital, Knoxville General Hospital and St. Mary's Memorial Hospital, where he died, February 2.

Carl Goldmark & New York; Columbia University College of Physicians and Surgeons, New York, 1896; on the staff of the Lebanon Hospital; consulting physician to the Will Rogers Memorial Hospital, Saranac Lake, N. Y.; aged 66; died, February 19, of hypertension and cerebral hemorrhage.

Frederick Alexander Logan, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1920; served during World War I; formerly assistant medical superintendent of the Toronto General Hospital; aged 47; died, February 7, in Niagara Falls of coronary occlusion.

Justin Herold, Scarsdale, N. Y.; Bellevue Hospital Medical College, New York, 1882; formerly professor of medical jurisprudence at the Fordham University School of Medicine, New York; for many years coroner's physician of New York County; aged 81; died, February 3.

H. Maxey Swift, Mount Vernon, Ill.; Physio-Medical College of Indiana, Indianapolis, 1895; member of the Illinois State Medical Society; formerly mayor and member of the state legislature; aged 71; died, February 15, of injuries received in an automobile accident.

John Calvin Hubenthal, Belmont, Wis.; Rush Medical College, Chicago, 1896; member of the State Medical Society of Wisconsin; past president of the Lafayette County Medical Society; formerly member of the county board of education; aged 73; died, January 18.

Charles Percy Charlton, Palmyra, Neb.; Chicago College of Medicine and Surgery, 1913; member of the Nebraska State Medical Association; served during World War I; associate staff member, Bryan Memorial Hospital, Lincoln; aged 55; died, February 18.

Alexander Carleton Potter © Cambridge, Mass.; Harvard Medical School, Boston, 1899; served during World War I; president of the New England Society of Physical Medicine; aged 68; died, January 28, in the Massachusetts General Hospital, Boston.

Romeo Joseph Morin, Lewiston, Maine; Laval University Faculty of Medicine, Quebec, Que., Canada, 1916; member of the Maine Medical Association; served during World War I; on the staff of St. Mary's General Hospital; aged 50; died, February 3.

James Roberts Nankivell, Athens, Tenn.; University of the City of New York Medical Department, 1878; member of the Tennessee State Medical Association; served during World War I; aged 87; died, February 6, in the Force Hospital of pneumonia.

William Emmett Wishart, Charlotte, N. C.; North Carolina Medical College, Charlotte, 1911; member of the Medical Society of the State of North Carolina; served during World War I; aged 55; died, March 2, of cerebral hemorrhage.

John Albert Martin, Indianapolis; Medical College of Indiana, Indianapolis, 1894; veteran of the Spanish-American War and World War I; aged 72; on the staff of the Methodist Hospital, where he died, February 19.

Herbert Jerome Matthews, Elliott, S. C.; Medical College of the State of South Carolina, Charleston, 1907; member of the South Carolina Medical Association; aged 57; died, February 17, in the Tuomey Hospital, Sumter.

George Tillerie Ross, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1880; member of the American Laryngological, Rhinological and Otological Society; aged 91; died, January 25.

Frank J. Chalaron & New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1892; veteran of the Spanish-American War; on the staff of the Mercy Hospital; aged 72; died in January.

Ernst Freund, Boston; Deutsche Universität Medizinische Fakultät, Prague, Austria, 1900; member of the Massachusetts Medical Society; author of a book entitled "Diseases of the Joints"; aged 65; died, February 19.

James Benjamin Wallace, Providence, Ky.; Hospital College of Medicine, Louisville, 1905; member of the Kentucky State Medical Association; member of the county board of health; aged 75; died, January 31.

James Eldred Miller & Huntsville, Ala.; Memphis (Tenn.) Hospital Medical College, 1911; past president of the Madison County Medical Society; on the staff of the Huntsville Hespital; aged 59; died, February 27.

Leonard Dominic Marinaro, Sharon, Pa.; Georgetown University School of Medicine, Washington, D. C., 1926; member of the Medical Society of the State of Pennsylvania; aged 42; died, February 10.

Isaiah Snyder Morris, Detroit: University of Michigan Homeopathic Medical School, Ann Arbor, 1886; served during World War I; aged 77; died, February 15, in the Mount Carmel Mercy Hospital.

George Lawrence Nicholas, New City, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1887; also a clergyman; aged 77; died, died, February 17.

James E. Nelson, Lodi, Calif.; University of Missouri School of Medicine, Columbia, 1905; member of the California Medical Association; aged 62; died, January 5, in a hospital at Merced. William Gillmore Booth, Seattle; Baltimore Medical College, 1898; member of the Washington State Medical Association; aged 81; died, February 6, of chronic myocarditis and pneumonia.

Joseph William Allen, Goodman, Miss.; Memphis (Tenn.) Hospital Medical College, 1894; Marion-Sims College of Medicine, St. Louis, 1896; aged 71; died, February 4, in Jackson.

Armistead Montgomery Fredlock, Elkins, W. Va.; University of Maryland School of Medicine, Baltimore, 1889; for many years mayor; health officer; aged 75; died, February 15.

Willard Anthony Thompson & Dixon, Ill.; Halmemann Medical College and Hospital, Chicago, 1910; served during World War I; aged 59; died. March 1, of coronary thrombosis.

Walter Scott Lucas, Ventnor, N. J.; Jefferson Medical College of Philadelphia, 1910; member of the Medical Society of the State of Pennsylvania; aged 69; died, February 12.

Guy Leslie Herman, Socorro, N. M.; University of Tennessee College of Medicine, Memphis, 1912; member of the New Mexico Medical Society; aged 54; died, January 25.

William Wilmerding Moir € Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1906; aged 60; died, February 3, of a self-inflicted bullet wound.

Edward F. Hanlon, Hazleton, Pa.; Jefferson Medical College of Philadelphia, 1908; member of the Medical Society of the State of Pennsylvania; aged 69; died, February 23.

Martin Joseph Larkin, Philadelphia; Eclectic Medical College, Cincinnati, 1913; member of the Medical Society of the State of Pennsylvania; aged 70; died, February 9.

Goodall Harrison Wooten, Austin, Texas; College of Physicians and Surgeons, medical department of Columbia College, New York, 1895; aged 72; died, January 30.

Thomas Andrew McGrath, Hoosick Falls, N. Y.; Albany Medical College, 1909; served during World War I; formerly county coroner; aged 54; died, February 10.

Robert A. Pogue, Covington, Va.; Meharry Medical College, Nashville, Tenn., 1918; aged 56; died, January 10, in the Chesapeake and Ohio Hospital, Clifton Forge.

Abe Bethel Penn, Alexandria, Va.; Howard University College of Medicine, Washington, D. C., 1902; aged 64; died, January 15, at his home in Washington, D. C.

John Medicus Cullum, Nashville, Tenn.; University of Nashville Medical Department, 1905; formerly member of the board of education; aged 71; died, February 17.

Marion U. Thomas, Weeping Water, Neb.; University Medical College of Kansas City, Mo., 1897; aged 76; died in February at Lincoln of coronary thrombosis.

Albert Schupmann, Chicago; Homeopathic Medical College of Missouri, St. Louis, 1897; member of the Illinois State Medical Society; aged 79; died, January 25.

Cary S. McCafferty, Columbus, Ohio; Columbus Medical College, 1890; member of the Ohio State Medical Association; aged 73; died, February 7, of heart disease.

Samuel Edward Lynch, Olyphant, Pa.; Jefferson Medical College of Philadelphia, 1887; formerly superintendent of the Blakely Home; aged 80; died, January 25.

Frank S. Hargrave, Orange, N. J.; Leonard Medical School, Raleigh, N. C., 1901; for many years member of the state legislature; aged 68; died, March 11.

Ettore Tresca € New York; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1892; aged 74; died, January 15, in the Park West Hospital.

W. Johnson Strother, Culpeper, Va.; Medical College of Virginia, Richmond, 1871; member of the Medical Society of Virginia; aged 92; died, February 15.

George Mathes, Kiel, Wis.; Chicago Homeopathic Medical College, 1904; for many years health officer; aged 69; died, February 19, of miliary tuberculosis.

Jesse A. Clifton, Beaufort, S. C.; Medical College of the State of South Carolina, Charleston, 1896; aged 68; died, January 6, in a hospital at Walterboro.

Leslie Bryce Stockslager, Lewiston, Idaho; Barnes Medical College, St. Louis, 1908; aged 57; died, February 17, in Clarkston, Wash., of heart disease.

Charles Francis McNevin & St. Paul; Northwestern University Medical School, Chicago, 1908; aged 64; died, February 16, in St. Joseph's Hospital.

Cranz Nichols € Maxwell, Texas; University of Texas School of Medicine, Galveston, 1913; served during World War I; aged 53; died, January 6.

Ralph Waldo Emerson Bledsoe, Los Angeles; Meharry Medical College, Nashville, Tenn., 1915; served during World War I; aged 46; died, January 25.

Walter Raleigh Breeding, Marysville, Kan.; Rush Medical College, Chicago, 1892; member of the Kansas Medical Society; aged 77; died, January 9.

Giovanni Castaldi, Providence, R. I.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1923; aged 42; died, Dec. 12, 1941, in Boston.

William Laban Moore, St. Louis; Barnes Medical College, St. Louis, 1899 and 1907; aged 67; died in February at the Missouri Baptist Hospital.

Theodore A. Nichols, Mission San Jose, Calif.; University of California Medical Department, San Francisco, 1885; aged 80; died, January 16.

James Robert George, Fredonia. Tenas; University of Tennessee Medical Department, Nashville, 1897; aged 67; died, February 4, of endocarditis.

Thomas Lucius Shaffner, Los Angeles; University of Southern California College of Medicine, Los Angeles, 1889; aged 79; died, January 3.

Iva Seal Thompson, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1902; died, February 17, in the Woman's Hospital.

Leo Francis Driscoll, Brookline, Mass.; Georgetown University School of Medicine, Washington, D. C., 1929; aged 40; died, Dec. 20, 1941.

Mark Clyde Jones, Joliet, Ill.; Marion-Sims College of Medicine, St. Louis, 1898; served during World War I; aged 70; died, February 10.

David Leslie Lowry, Teague, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1906; aged 62; died, February 7.

Mahlon William Locke, Williamsburg, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1905; aged 61; died, February 7.

Joseph Stevenson, Louisville, Ky.; Southwestern Homeopathic Medical College and Hospital, Louisville, 1901; aged 81; died, January 28.

George Jordan Mehler ♥ Lynbrook, N. Y.; University and Believue Hospital Medical College, New York, 1924; aged 40; died, February 1.

J. Walter Carryer, Columbia, Mo.; Cincinnati College of Medicine and Surgery, 1878; aged 87; died, February 9, of chronic bronchitis.

Lewis Alfred Querner, Toledo, Ohio; Medical College of Ohio, Cincinnati, 1909; served during World War I; aged 54; died, January 31.

Alexander Leslie Marshall ⊕ Harrisburg, Pa.; Medico-Chirurgical College of Philadelphia, 1910; aged 52; died, February 2.

Edwin H. Jones, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1889; aged 79; died, January 21.

Berry W. Fite & Resaca, Ga.; Southern Medical College, Atlanta, 1887; aged 79; died, January 13, of coronary occlusion.

William Lewis Elmore, Frankfort, Ky.; College of Physicians and Surgeons, Baltimore, 1883; aged 85; died, January 11.

Paul Louis Gailmard, Ekalaka, Mont.; Emory University School of Medicine, Atlanta, 1926; aged 39; died, January 13.

William Ivanhoe Kinsley, San Diego, Calif.; Bennett Medical College, Chicago, 1909; aged 63; died, January 27. John McAllister, New York; Albany Medical College

John McAllister, New York; Albany Medical College, 1879; aged 90; died, February 6, at his home in Scarsdale.

John Francis Oslin, Providence, R. I.; Tufts College Medical School, Boston, 1920; aged 46; died, February 7.

Thomas F. Brady, Detroit; Detroit College of Medicine, 1903; aged 63; died, January 31, of coronary thrombosis.

Rolla Beatty Fore, Blanchard, Pa.; Baltimore University School of Medicine, 1898; aged 64; died, February 21.

Charles H. Hodson, Vacaville, Calif.; Eclectic Medical Institute, Cincinnati, 1881; aged 85; died, January 14.

William Joseph Sullivan, Baltimore; Maryland Medical College, Baltimore, 1901; aged 71; died, January 30.

# Bureau of Investigation

# SCIENTIFIC (SIC) MANUFACTURING COMPANY, INC.

# Actions of Various Federal Agencies Against the Concern and Its President, Howard J. Force

From Scranton, Pa., the Scientific Manufacturing Company, Inc., with a Howard J. Force as president, sold through the mails a nostrum called "Dialin." It was promoted as a remedy for diabetes with the promises "New achievement, DIALIN, reduced sugar and thirst. Widely used . . . Modified diet. No needle." Such claims, of course, implied that a diabetic patient could give up insulin and substitute Dialin. Those who answered the advertisement received extensive literature including testimonials from lay users as well as from osteopaths, chiropractors, and one doctor of medicine. According to the directions one was to take a teaspoon of the preparation in a little water after meals. Also when the sugar had been reduced to normal the dose was to be cut down one half for about four weeks. Then too there were furnished "suggestions to those using Dialin." These were to the general effect that aluminum and aluminum baking powder should not be used; that brown sugar, molasses, honey, cracked wheat or whole wheat bread should be taken and saccharin and pasteurized milk should be avoided. The purchaser was advised to eat the things that he knew would agree with him, but nothing was said to help one determine which foods would agree with him.

As the scheme appeared to the Post Office Department to be a means of obtaining money through the mails on false and fraudulent pretenses, representations and promises, that agency on Feb. 17, 1941 ordered the promoters to show cause on March 13 why their business should not be debarred from the mails. After several postponements the hearing took place on April 30 and H. J. Force appeared with his attorney. At the hearing it was brought out that Dialin had been offered to the public under the representations that when used as directed it would quickly overcome and relieve the "weak and tired feeling" and "that great thirst" common to the diabetic; that Dialin, when used as directed by any person in the advanced stages of diabetes, would completely normalize or materially reduce the sugar content of both blood and urine, remove the cause of diabetes and cure this condition, besides being an effective substitute and eliminating the necessity for insulin injections.

The defendants' answer denied these charges and alleged in substance that all their claims for Dialin were true and correct and that they had not knowingly misrepresented it in any way but had attempted to make clear to all prospective purchasers that the thing was not a cure for diabetes. H. J. Force testified that he had developed Dialin and had experimented with it for about two years before placing it on the market in 1936. The reason for its development, he said, was the necessity for providing a friend, who was diabetic and refused to take insulin, with a preparation which would help her control her condition. Force admitted that except for his training obtained in the New Jersey College of Pharmacy and his subsequent practical experience in the field of chemistry he had no specialized knowledge of medicine.

A qualified chemist who appeared for the government at the hearing testified that his analysis of Dialin showed that each teaspoon of it contained 2.16 grains of magnesium carbonate, 3.48 grains of sodium bicarbonate, 14.9 grains of glycerin, 3.372 grains of plant material including rhubarb and ipecac, 0.32 grain of peppermint, 0.925 grain of alkaloids, 0.01 grain of iron, a small amount of alcohol and traces of phosphate, citrate and calcium. Substantially the same information appeared on the Dialin label.

Another government witness was a physician who specializes in the treatment of diabetes and lectures on that subject in a leading medical school. His testimony covered the causes and symptoms of this disease and outlined its scientific treatment. From this standpoint he showed that the use of a "patent medicine" like Dialin is utterly discredited as a treatment for diabetes. Force attempted to refute the physician's testimony

by presenting that of a lay user of Dialin and testimonial letters of a doctor of medicine and several osteopaths and chiropractors. These testimonials, however, failed to state the dietary restrictions observed by the respective patient at the time that Dialin was being used or else did state that the patient had observed a certain prescribed diet.

As Force was unable to disprove the charges brought against him, the Post Office on Aug. 16, 1941 issued a fraud order debarring the Scientific Manufacturing Company, H. J. Force, president, and their officers and agents from the mails. Force, however, like some other promoters of mail order medical fakes, did not discontinue his scheme but simply changed its trade style, operating under the name Howard Force and continuing to send out literature similar to that revealed by the government's earlier investigation. He advised his correspondents that the product would be shipped by Howard Force by capters and that the purchaser should not remit by postoffice money order in payment but should send cash, express order or check. When the Post Office discovered this evasion it issued a supplementary fraud order against the name of Howard Force under date of Oct. 10, 1941.

Incidentally, two additional government agencies have taken action against Force or the concern with which he is connected. In March 1933 the Food and Drug Administration seized a consignment of "Menno" that had been shipped in interstate commerce by the Scientific Manufacturing Company, Inc., and charged that the label bore false and fraudulent claims as to its curative effect on indigestion, "gas condition" and ptomaine poisoning, among other things. Government chemists reported that it consisted essentially of plant drugs including a laxative with glycerin, alcohol and water, small amounts of sodium and magnesium carbonates and a trace of ipecac alkaloids. As the company neither put up a defense nor claimed the property, the latter was confiscated.

Similar charges were made against another interstate consignment of Menno shipped around the same time with a quantity of "Pheno-Isolin," another of the concern's products. The government charged that the labels of Pheno-Isolin bore false and fraudulent representations, such as that it is effective to prevent and destroy infection and to act as a local antitoxin. According to a government chemist, Pheno-Isolin was found to be nothing more wonderful than a mixture consisting essentially of turpentine, camphor, menthol and resin dissolved in an oil and would require many hours of contact with bacteria before exerting any germicidal action. Tests also showed that it was not an antitoxin. In this case, tried in a district federal court, the defendants entered pleas of nolo contendere and the court imposed a fine of \$30.

Another seizure of a shipment of Pheno-Isolin in interstate commerce was made in August 1933 on charges similar to those already mentioned, and since the Scientific Manufacturing Company, Inc., made no reply in this case the consignment was confiscated by the court.

On April 30, 1938 another government agency, the Federal Trade Commission, announced that as the result of a complaint that it had brought against the Scientific Manufacturing Company, Inc., that concern had signed a stipulation in which it promised the Commission to discontinue on its labels or in its advertising matter misrepresentations to the effect that Pheno-Isolin possesses antitoxic properties or acts as a "sure" germicide when used in connection with the treatment of certain maladies or that, when used as directed, the product destroys infection, dissolves all kinds of bacteria or does a few other things.

In April 1941 the Commission took further action against the Scientific Manufacturing Company, Inc., and Howard J. Force by issuing a complaint against them for representing that "Pheno-Isolin" and "Pheno-Isolin Ointment" constitute competent antiseptics and germicides and possess substantial therapeutic value in treating skin infections generally. Some twenty specific ailments or conditions, including ulcers, carbuncles, abscesses, diphtheria and influenza, were mentioned as disorders for which the products in question were excessively recommended. At the same time the Commission also charged the respondents with representing that their Dialin constitutes a remedy and effective treatment for diabetes and benefits a

diabetic person in various specific ways. The complaint further was directed against testimonials in the advertising matter which were alleged to have been written by physicians. According to the complaint, the respondents' preparations are not used or recommended by the medical profession generally. Shortly afterward Force and his concern replied with a general denial of the charges, and it appears that the case has not yet been concluded

On Feb. 1, 1941 the Commission reported that it had ordered the Scientific Manufacturing Company, Inc., and its president, Howard J. Force, to discontinue misrepresentations contained in the pamphlets entitled "Poisons Formed by Aluminum Cooking Utensils" and "Are You Heading for 'The Last Round-Up'?" These were to the effect that food prepared or stored in aluminum utensils is unsafe, deleterious, disease producing, poisonous or otherwise dangerous to the health. Subsequently, however, according to Editor and Publisher for Jan. 17, 1942, the United States Circuit Court set aside the Cease and Desist order, ruling that, since the Scientific Manufacturing Company and H. J. Force do not make cooking utensils of nonaluminum material and hence no competition exists between them and manufacturers of aluminum cooking utensils, the antialuminum pamphlets mentioned merely represent statements of opinion rather than unfair trade practice.

Howard J. Force has long been one of those who have promoted the preposterous propaganda against aluminum cooking utensils. He has cited as sponsors of his cause a list of alleged physicians When their names were looked up it was found that few of them were doctors of medicine; many were already in the Bureau of Investigation's quackery files for other professional irregularities. Additional representatives of the antialuminum following are reported to have given testimonials for Pheno-Isolin, including Charles T. Betts of Toledo, an early leader in the movement, the questionable Koch Laboratories of Detroit, promoters of a "cancer cure," and the utterly quackish Baker cancer outfit. The latter, once at Muscatine, Iowa, but in its final days at Eureka Springs, Ark, seems to have closed up shop since the government sent its promoter, Norman Baker, to prison in 1941 for conducting a mail order fraud.

# SOME MISCELLANEOUS MEDICAL FRAUDS A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of The Journal. Following are brief abstracts of some fraud orders not dealt with previously.

Esselstein's "Cancer Cure."-From Spokane, Wash, one W C. Esselstein, using "N.D." after his name, put out a treatment that he variously called "W. C Esselstein's Internal Cancer Formula Soluble Organic Food" and "Esselstein's American Herb Formula." The Post Office investigation disclosed that he advertised it through the mails by means of small cards that recommended it "for treating all internal and external cancers, fibroid tumors, stomach ulcers, arthritis and abdominal diseases" and that he represented that it had cured him of an internal cancer and would do as much for others. In one of his follow up letters to an inquirer, it was reported, he claimed that it would restore users to "health even after the were considered beyond medical aid," and that it could safely be used by With the treatment went certain dietary instructions and a any one warning against the use of aluminum cooking utensils. According to the Post Office memorandum on the case, Esselstein claimed that his nostrum consisted of cascara bark, senna leaves, water pepper, yerbo santa, American saffron, bloodroot and water, with sodium benzoate as a preservative, and this composition was indicated by the government chemists' analysis An expert medical witness testified that neither this mixture nor any other would check or eliminate cancerous growths in the body and that, in fact, Esselstein's nostrum, by its irritating effect, might aggravate concerous conditions and also cause the rupturing of a diseased appendix. The Post Office's findings, therefore, were that Esselstein's scheme amounted to obtaining money through the mails by means of fraudulent pretenses, representations and promises, and a fraud order was accordingly issued on Oct. 15, 1940 debarring it from the mail-

Magic Oil Company and Carl G. Schnepel — "Magic Oil Liniment" also known as "Cirls Magic Oil Liniment" was the product that Carl G Schnepel, operating from Colorado Springs as the Magic Oil Company, sold through the muls According to the Post Office memorandum on this case he promoted the product under the false and fraudulent representations that his product would effectively overcome rheumatism, neurities and arthritis, cure athlete's foot, remove eezema and erndicate colds, sore throat, hay fever and asthma. According to the memorandum, the basi

ness was started in Omaha in 1933 and after moving to several other places it was established in Colorado Springs in September 1940. Testimonials, of course, were played up in the advertising. When an investigator for the Post Office questioned Mr. Schnepel as to the composition of his liniment, he replied that it contained oils of wintergreen, mustard and eucalyptus, as well as camphor, turrentine, menthol, saleylic acid and acetone. A government chemist found all of these except acetone present in the product. Although Schnepel sent eleven separate communications to the Post Office, in general denying the allegations of fraud, he neither put in an appearance at the hearing on Dec. 20, 1940 nor sent a representative. At this hearing an expert medical witness for the government testified that a mixture such as this liniment is essentially a counterirritant and produces its effects by irritation of the outer layers of the skin. Hence it might offer temporary pulliation for the aches and pains incident to some types of arthritis and rheumitism but, as the witness pointed out, "the presence of foci of infection in the body, venereal discusses and other factors are often involved in the onset of rheumitism and arthritis." The findings at the hearing were that the sale of this liniment constituted a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and on Jan 7, 1941 a fraud order was issued against various forms of the names of Carl G Schnepel and the Magic Oil Company.

Relivo Products Company.—Under this trade style one Joseph R. Jefferis of Indianapolis sold through the mails three products called "Relivo Salets," "Nervilo" and "Urlavo". The first named was sold under representations that when used as directed it would cure rheumatism, neuritis, gout, lumbago, neuralgia and arthritis and overcome all pains and aches resulting therefrom, besides having no but effects on the user. A government chemist testified that each tablet of this nostrum (12.5 grains) contained 42 grains of acetophenetidin, 42 grains of acetophenetidin, and according to the advertising, were supposed "to represent a balanced formula for the treatment of the nerves," to overcome nervousness, "jitters" and sleeplessness and were represented as a safe and dependable nerve tonic. The chemist testified that each tablet contained 0.3 grain of phenobarbital, a trace of mydriatic alkaloid and, for the rest, mostly powdered kaolin and a small amount of powdered okra. Urlavo was represented to overcome and prevent gallstones and correct the cause of biliousness, congested liver and dyspepsia and restore a free flow of bile and proper intestinal and gastric digestion. The same chemist reported that this nostrum contained small amounts of emodin, bile salts, salicylate and phenolphthalein. The Post Office found that the sale of these nostrums constituted a scheme for obtaining money through the mails under false and fraudulent pretenses and on Oct 16, 1940 debarred the Relivo Products Company from further use of the mails

T. J. Hutton, M.D.—On July 25, 1940 the Post Office Department served notice on T J Hutton, M.D., of Powers, Mich, to show cause, at a hearing to be held on September 3, why a fraud order should not be issued against him for soliciting remittances of money through the mails for an alleged treatment for tuberculosis. According to the Post Office memorandum Dr. Hutton disparaged the use of surgery and claimed that his treatment was significantly different from and more effective than any methods regularly prescribed by tuberculosis specialists, that it would cure, within one year, practically all cases of tuberculosis including those in the advanced stages; that various medicines he furnished were valuable and effective adjuncts to measures regularly used for tuberculosis and were necessary for the cure of that disease and that by means of information supplied by customers to whom he sent blanks he could correctly diagnose and properly prescribe for all persons suffering from tuberculosis without personally examining them. The memorandium went on to show that Dr. Hutton started this business in 1912 and advertised it in various publications, following up inquiries with form letters. Hutton neither appeared at the government hearing nor sent a representative. A chemist and a microanalyst in the employment of the government testified to finding the following composition in Hutton's medicines

Red Pills In each, essentially 2 grains of creosote, 0.83 grain of acid insoluble material, probably tale, 0.18 grain of iron and about 2 grains of calcium, coating and color.

White Powder (no paper box) Essentially potassium chloride.

Second White Powder Found on microscopical examination to contain

Second White Portaer 1 aund on microscopical examination to contain finely ground bone (including some calcium errboarte), also material closely resembling precipitated calcium phosphate

Granular Winte Poteder. Essentially sodium chloride and moisture Colorless Liquid Essentially an aqueous solution containing 0.94 per cent of solid material, mostly sodium chloride and about 0.08 per cent of phenol

Second Colorless Liquid An aqueous solution containing 2.22 per cent of solid material, mostly sodium chloride and about 0.09 per cent of phenol

These products were to be taken internally, some to be sprinkled on the food, others to be consumed in doses before micks and the liquids to be injected under the skin by means of a hypodernic needle. An expert medical witness testified for the government on the different forms of tuberculosis and the scientific treatment therefor and showed that under Hutton's method the patient was deprived not only of a physician's personal examination and care but also of any opportunity for surpreal measures, both of which, the expert witness pointed out, are essential to successful treatment of many cases of tuberculeus. He also bre is he out that the clart supplied by Dr Hutton to his mail-order "patients" is not a correct guide to follow for proper diagnosis and treatment, nor would the combination of the Hutton medicines of statute a scientific treatment for tuberculosis. Accordinally the Pest Ofice Department on Sept. 21, 1940 declared Hutton's selecte a fraud and defined it from the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the number of the numb

# Correspondence

# SURGERY FOR CANCER OF THE PROSTATE

To the Editor:—In The Journal, March 7, page 855, there is a statement with regard to cancer of the prostate. In the first paragraph of the reply to the question it is stated that:

It is the opinion among urologists that once the diagnosis of carcinoma of the prostate has been made it is technically impossible to do any sort of surgical procedure that would effect a cure. Once the diagnosis of carcinoma of the prostate has been definitely made, the condition is no longer surgical.

Undoubtedly the opinion that is expressed is held by a large proportion of urologists, chiefly those who have never done a perineal prostatectomy. A small but steadily increasing number have become convinced of the soundness of Hugh Young's teachings concerning the value of total perineal prostatectomy for selected cases of early prostatic cancer. Frank Hinman, Alexander Randall and Roy Henline are among the men who believe this operation worth while.

This is not the occasion for a lengthy review of the results obtained by various operators. It may be enough to point out that 1 of Young's patients lived twenty-five years after operation without evidence of recurrence and that of 38 patients with favorable prognosis 50 per cent lived five years or more after operation without evidence of recurrence or metastasis.

"One patient died less than five years after operation of another disease. A careful autopsy showed no recurrence or metastases." (Young H. H.: Surg., Gynec. & Obst. 64:472 [Feb.] 1937).

In my own series of around 80 patients, there are 2 alive and well thirteen years after operation, and at least 25 are living from one to twelve years after prostatectomy. The prostate of the last patient operated on, carefully sectioned after its removal, proved to contain but one focus of adenocarcinoma. This nodule was 1 cm. in diameter but, as is usually the case, it was situated close to the periphery of the gland and could easily be detected on rectal palpation. As proof of the fact that no superhuman diagnostic acumen is required for the recognition of these cases, let me say that a considerable proportion of the early cases have been referred to me by internists who have discovered suggestive prostatic nodules on routine rectal examination.

There is no certainty of obtaining a cure in any case of cancer, no matter what organ is involved. The percentage of probable cures achieved by total prostatectomy in my own series is around 25 per cent, but with the newer methods of treating prostatic cancer it seems reasonable to expect that, even if the growth develops elsewhere, from metastases which had taken place before operation, it may be controlled by castration and the administration of diethylstilbestrol.

The statement says "Once the diagnosis of carcinoma of the prostate is definitely made, the condition is no longer surgical." The diagnosis of any cancer can be made "definitely" only by microscopic examination of the tissue. Even this criterion can be fulfilled, in the case of prostatic cancer, by a biopsy of the suspected area after the prostate has been exposed by a perineal approach. This is done frequently in cases of early involvement, and if the report is positive total prostatectomy is then performed.

The fact that there are not many urologists well enough trained in the perineal approach to perform total prostatectomy does not justify the statement that the operation cannot be done. I regret to say that The Journal is misinformed with regard to the treatment of early cancer of the prostate.

George Gilbert Smith, M.D., Brookline Mass.

# LOCAL USE OF SULFONAMIDE COMPOUNDS

To the Editor:—The article by Dr. Frederic W. Taylor on the misuse of sulfonamide compounds, which appears in the March 21 issue of The Journal, paints a discouraging picture with regard to the local use of these drugs. Although his experimental observations are no doubt true, from a practical point of view and experience with the clinical use of these drugs, the advantages of their local use, it seems to me, far outweigh the disadvantages. I have recently been interested in the use of sulfathiazole prepared in the microcrystalline form. The details of the preparation will be reported elsewhere. I wish to state here, however, that the crystals are of uniform size and are extremely small. The advantage of this type of preparation is the fact that a considerably greater surface exposure is permitted so that the drug, although no more soluble, goes into solution more readily.

When the material is applied with an insufflator into fresh traumatic wounds or operative wounds in which infection might be expected, as for instance in closure of a colostomy, the wounds heal without any apparent inflammatory reaction. Although Dr. Taylor has reported the finding of abscesses around sulfathiazole crystals in wounds my experience has been exactly the reverse. The wounds heal primarily without serum or inflammatory reaction, and I have not had 1 single case in which there was any evidence of the formation of an abscess. As a matter of fact, the results that I have obtained in cases in which wounds were closed and in which a definite infection was to be expected were remarkable. I now feel so confident about the use of this drug that I have closed numerous colostomies without drainage and have had no instance of infection developing.

As to the use of the sulfonamide drugs in the abdomen, I have had an interesting experience, both clinically and experimentally, concerning this question. There is no doubt that the application of a powdered drug, especially the powdered insoluble drugs such as sulfathiazole or sulfadiazine, does produce a local conglomeration of the drug with some peritoneal reaction and a foreign body type of reaction. The microcrystalline preparation can be suspended in saline solution in a strength of 10 or 20 per cent. This forms a material much like magma magnesiae, which remains in suspension and which can be injected through a syringe. When introduced into the abdomen there is general spreading of the drug throughout the abdominal cavity, and I have not found a single instance of any evidence of a peritoneal irritation when the abdomen in experimental animals was examined five to seven days after the implantation of the drug. In clinical usage also the drug has proved to be extremely valuable, and there has been no evidence of any peritoneal irritation, although I have not had an opportunity to examine an abdomen after the use of the drug.

I agree with Dr. Taylor in his suggestion that the use of the sulfonamides locally is unnecessary in routine incisions which are made for clean operations. On the other hand, I am of the opinion that the local use of these drugs, especially the microsulfathiazole preparation, in contaminated wounds and in traumatic lesions offers the maximum of protection against infection. Sulfathiazole is of more value than sulfanilamide in this respect in that it remains in the wound for a longer period and so exerts a longer action (three to four days). Furthermore, its effectiveness seems to be greater against a wider range of organisms than does the more soluble sulfanilamide.

L. KRAEER FERGUSON, M.D. Philadelphia.

# Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE Chicago, Feb 1516, 1943 Sec., Council on Medical Education and Hospitals, Dr. H. G. Weiskotten 535 North Dearborn Street, Chicago

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES
Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in The Journal, April 18, page 1398

### BOARDS OF MEDICAL EXAMINERS

Montgomery June 1618 Acting Sec, Dr B F Austin, ALABAMA

ARABAMA alonigomery June 10 to 1 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to

CALIFORNIA Written San Francisco, June 29 July 2 Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, May 20 Sec, Dr Charles B Pinkham, 1020 N St, Sacramento

DELAWARE Dover, July 1416 Sec., Medical Council of Delaware, Dr Joseph S McDaniel, 229 S State St., Dover LORIDA * Jorison villa line 2223 Sea. Dr. 11 Mar. M. Daniel.

Jacksonville, June 22 23 Sec , Dr William M Rowlett, FLORIDA * ] Box 786, Tampa

FLORIDA * Jacksonville, June 22 23 Sec, Dr William M Rowlett, Box 786, Tampa
GEORDIA Allanta June Sec, State Examining Boards, Mr R C Coleman, 111 State Capitol, Atlanta
HAWALI Honolulu July 13 16 Sec Dr James A Morgan, 55
Young Bldg, Honolulu
LLINOIS Chicago June 23 25 Superintendent of Registration, Mr Philip M Harman Department of Registration and Education, Springfield Indiana Department of Registration and Examination, Dr J W Bowers, 301 State House, Indianapolis
IONA * IOWA City, May 11 13 Dir, Division of Licensure and Registration Mr H W Grefe, Capitol Bldg, Des Moines
KAMSAS Kansas City, June 23 Sec, Board of Medical Registration and Examination, Dr J F Hassig, 905 N Seventh St, Kansas City
KENTUCKY Louisville, May 27 29 Sec State Board of Health, Dr A T McCormack, 620 S Third St, Louisville
MARLIAND Medical Baltimore, June 912 Sec, Dr John T O Mara, 1215 Cathedral St Baltimore, Homeopathic Baltimore, June 1617 Sec, Dr John A Evans, 612 W 40th St, Baltimore, Michigan * Ann Arbor and Detroit, June 3 5 Sec, Board of Registration in Medicine, Dr J Earl McIntyre, 202 4 Holhster Bldg Lansing Mississippi Jackson June 24 25 Assistant Sec, State Board of Health, Dr R N Whitfield, Jackson
Missourt St Louis June 46 Sec, Board of Health Dr James Stewart, State Capitol Bldg, Jefferson City
New York Albany, Buffalo New York and Stracuse, June 22 25 Chief Bureau of Professional Examinations, Mr Herbert J Hamilton, 315 Education Bldg, Albany
North Carbolisha Raleigh, June 15 Sec, Dr W D James, Hamlet

NORTH CAROLINA Rolegh, June 15 Sec. Dr W D James, Hamlet NORTH CAROLINA Rolegh, June 15 Sec. Dr G M Williamson, M S Third St, Grand Forks, July 7 10 Sec., Dr G M Williamson, M S Third St, Grand Forks

41/2 S Third St , Gi Onio Written Broad St , Columbus Columbus, June Sec, Dr H M Platter, 21 W

OKLAHOMA * Oklahoma City June 34 Sec., Dr James D Osborn

OREGON * Portland July 22 24 Application must be on file not later than July 9 Exec Sec, Miss Lorienne W Conlee, 608 Failing Bidg,

PENNSTRANIA Philadelphia and Pittsburgh July Act Sec Bureau of Professional Licensing, Mrs Marguerite G Steiner, 358 Education Bidg, Harrisburg

SOUTH CAROLINA Colur 505 Saluda Ave, Columbia Columbia June 22 24 Sec , Dr A Earle Boozer,

505 Saluda Ave, Columbia

SOUTH DANOTA * Pierre, July 21 22 Dir, Medical Licensure, Dr
J F D Cook State Board of Health Pierre

UTAH Salt Lake City June 29 30 Assistant Dir, Department of
Registration, Mr G V Billings, 324 State Capitol Bldg, Salt Lake City

VERNOY Burlington, June 16 18 Sec., Board of Medical Registration Dr F J Lawliss Richford

VIRGINIA Richmond, June 17 20 Sec., Dr J W Preston, 3015

Franklin Rd, Rognobe

Virginia Richmond, June 1, 20
Frinklin Rd, Roanoke
Wisconsin * Milwaukee June 30 July 3 Sec., Dr H W Shutter,
425 E Wisconsin Ave., Villwaukee
Wioning Chevenne, June 12 Sec., Dr M C Keith, Cipitol Bldg.,

### * Basic Science Certificate required

# BOARDS OF EXAMINERS IN THE BASIC SCIENCES

BOARDS OF EXAMINERS IN THE BASIC SCIENCES
CONNECTICUT June 13 Address State Board of Healing Arts, 1945
Aale Station, New Haven
FLORIDA Gamesville, June S Sec, Professor J F Conn, John B
Stetson University, De Land
Michigan Ann Arbor and Detroit, June 12 13 Sec, Miss Eloise
LeBeru 101 A Walnut St Lansing
Aebraska Omain May 56 Dir Bureau of Examining Boards,
Mrs Jeannette Crawford, 1009 State Capitol Bidg, Lincoln
Aew Mexico Springer, June 12 Sec, Miss Pia loerger, State
Capitol Santa Fe
Oklahoma Oklahoma Cita, May 15 Sec, Dr Oscar C Newman,
Shattuck

Shattuck

Shattuck
OREGON Corvallis July 11 Application must be on file not later than June 24 See, Mr Charles D Burne University of Oregon, Eugene Rhode Island Providence, May 20 Chief Division of Examiners, Mr Thomas B Caser, 166 State Office Bidg Providence South Dakhoty Vermillon June 56 See Dr G M Evans Vankton Wisconsin Milwaukee June 6 See Prof Rebert N Bauer 3414

# Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

Hospitals: Interns Are Not "Students."-The petitioner, and others on whose behalf he sued having completed a medical course and received a degree from an accredited medical school, was serving an internship in a New York hospital supported wholly or partly at public expense Section 150 of the Election Law of the state provides, among other things, that an eligible voter must have been an inhabitant of the state for the preceding year, a resident of the county for four months and a resident of the election district for thirty days Section 151 provides that "for the purpose of registering and voting no person shall be deemed to have gained or lost a residence . . . while a student of any seminary of learning, nor while being kept at any almshouse, or other asylum, or institution wholly or partly supported at public expense or by charity. . Contending, in effect, that the petitioner was either a "student" or a "kept" person within the meaning of section 151 and hence, apparently, not a resident of the county in which the internship was being served, the commissioners of election of the county of Monroe refused to accept his registration as a voter Accordingly the petitioner, on behalf of himself and all others similarly situated, applied to the supreme court, Monroe County, New York, for an order directing the commissioners to accept the registration of himself and of the others

The supreme court said that there is a difference between "students" and "interns". The medical practice act, it was pointed out, defines students as persons who are "matriculated and enrolled in medical school," although they are permitted to perform some functions in hospitals. An intern, on the other hand, has already completed his medical course and is serving on the resident staff of the hospital. The petitioner, as an intern, received no wages but he did receive room, board and maintenance and was on day and night call at the hospital That was far different, said the court, from the freedom normally associated with student life. The supreme court also held that the petitioner was not "kept" within the meaning of the law. He was not a beneficiary of the charity of a publicly supported hospital but was working for the hospital under a written contract. The court therefore ordered the commissioners and inspectors of elections to register the petitioner and others on compliance with the statutory requirements of the election law —Rathbun v Smith, 23 N Y S. (2d) 95 (N Y, 1940)

Charitable Hospitals: Liability for Tort Conditioned on Liability for Taxation .- While the plaintiff was a pay patient in the defendant hospital, a charitable institution, she received injuries due to the alleged negligence of the defendant's servants in applying a hot pad. In a subsequent suit against the hospital, the plaintiff recovered a judgment in the trial court. This judgment was affirmed by the court of appeals with the modification that none of the defendant's property which was held in trust and was being used for charitable purposes might be subjected to satisfaction of the judgment From this judgment the defendant appealed to the Supreme Court of Tennessee.

The evidence disclosed that the defendant corporation owned, in addition to the hospital plant and equipment, a nurses' training school, a large office building, a retail drug store, an interest in a surgical supply house, and a farm valued at \$200,000. The total income derived by the hospital from these properties exceeded \$230,000 annually. The hospital itself received both charity and pay patients, and other buildings on the hospital premises afforded hotel accommodations, including room and meals, to friends and relatives of patients. The defendant contended, in effect, that it was immune from tort hability because of its charitable nature, that all of its income from whatever source, was devoted to hospital purposes-was property held in trust for the benefit of a charitable institution -and that therefore none of its property was subject to less

in satisfaction of the judgment The Supreme Court held that, according to the Tennessee law, a judgment could be rendered against a charitable institution when it appeared that satisfaction therefor could be had without encroaching on property devoted strictly to trust purposes Furthermore, that the immunity of such property depended on its direct and exclusive use in the operation of the trust. The court noted an analogy between the exemption of a charitable institution from taxation and its immunity from liability for tort. In 1935 the legislature redefined the tax exemption of charitable organizations by providing that they were exempt from taxation only to the extent that their property was used exclusively for charitable purposes The court said that a similar rule should be applicable to a case of this nature and that property exempt from tax liability should also be exempt from tort liability. Since it was clear to the Supreme Court in this case that the defendant did own property of great value which was subject to taxation, it was evident that a judgment could be satisfied out of that property without resorting to, or impairing, trust assets The judgment for the plaintiff was accordingly affirmed -Baptist Memorial Hospital v Couillens, 140 S W (2d) 1088 (Tenn , 1940).

Insanity: Liability of Physician for Certifying to Insanity When Appointed by Court.—In this case, a county court commissioner, in accordance with procedure authorized by statute, appointed two physicians to examine the plaintiff and report to the court as to her mental condition. The physicians found her insane and so reported to the court. On the strength of that report, the plaintiff was committed to an asylum Subsequently she sued the commissioner, the two physicians and another for malicious prosecution. The trial court sustained demurrers interposed by the defendants and the plaintiff appealed to the Supreme Court of Minnesota

In affirming the action of the trial court, the Supreme Court pointed out that a judge is not liable in a civil action to any one for his judicial acts, however erroneous or by whatever motives prompted, that the physicians were quasijudicial officers and that what they did was in the scope of their duties as such That being so, these physicians, the Court concluded, were within the protection of the rule and immune from suit -Linder v Foster et al , 295 N W 299 (Mmn , 1940)

# Society Proceedings

### COMING MEETINGS

American Medical Association, Atlantic City, N. J., June 812. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary

American Association for the Study of Allergy, Atlantic City, N J, June 89 Dr J Harvey Black, 1405 Medical Arts Bldg, Dallas, Texas Secretary

American Association for the Study of Gotter, Atlanta, G1, June 13 Dr Thomas C Davison, 478 Peachtree St NE, Atlanta Ga, Secretary American Association for the Surgery of Trauma, Boston, June 46 Dr Gordon M Morrison, 520 Commonwealth Ave, Boston, Secretary

American Association of Genito Urinary Surgeons, Hershey, Pa May 27 29 Dr Charles C Higgins, 2020 East 93d St, Cleveland, Secretary

American Association of the History of Medicine, Atlantic City, N J. May 35. Dr Henry E Sigerist, 1900 East Monument St., Baltimore, Secretary

American Association on Mental Deficiency, Boston, May 13 16 Neil A Dayton, 100 Nashua St., Boston, Secretary

American Broncho Esophagological Association, Atlantic City N J., June 89 Dr. Paul H Holinger, 700 North Michigan Blvd, Chicago, Sec

American College of Chest Physicians Atlantic City, N J. June 68
Dr Paul H Holinger, 500 North Dearborn St, Chicago, Secretary
American Dermatological Association, Hot Springs, Va May 31 June 4
Dr Harry R Foerster, 208 East Wisconsin Ave, Milmaukee, Secretary

American Gastro Enterological Association, Atlantic City, V J., June 8 9
Dr. J. Arnold Bargen, 102 Second Ave. S.W., Rochester, Minn

American Genecological Society, Skytop, Pa., June 15 17 Dr. Howard C. Taylor Jr., 842 Park Ave., New York, Secretary

American Heart Association Atlantic City N. J., June 56 Dr Howard B Sprague, 50 West 50th St., New York, Secretary

American Human Serum Association Atlantic City, N J June 8 Dr. Waurice Hardgrove 3121 North Maryland Ave. Milwaukee, Secretary

American Laryngological Association, Atlantic City, N J, May 25 27 Dr Charles J Imperators, 108 East 38th St, New York, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, N J, June 13 Dr C Stewart Nash, 277 Mexander St, Roch ester, N Y, Secretary

American Medical Women's Association Atlantic City, N. J., June 67
Dr. Adv. Chree Reid, 102 East 22d St., New York, Secretary.

American Neurological Association, Chicago, June 46
Dr. Henry A.
Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Vv., June 13
Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

Association Baltimore June 36
Dr. Christella Association Baltimore June 36
Dr. Christella American Orthopedic Association, Baltimore, June 36 Dr Charles W Peabody, 474 Fisher Bldg, Detroit, Secretary

American Otological Society, Atlantic City, N J, May 28 29 Dr Isidore Priesner, 101 East 73d St, New York, Secretary.

American Pedritric Society, Sky Top, Pa, Apr 30 May 2 Dr Hugh McCulloch, 325 North Euclid Ave, St Louis, Secretary

American Proctologic Society Atlantic City, N. J., June 7. Dr. William H. Daniel, 1930 Wilshire Blvd. Los Angeles Secretary.

American Psychiatric Association, Boston, May 18 22. Dr. Winfred Overholser, St. Elizabeths. Hospital, Washington, D. C., Secretary.

American Radium Society, Atlantic City, N. J., June 89 Dr. Avel A. Arneson, 4952 Maryland Ave., St. Louis, Secretary

American Society for Clinical Investigation, Atlantic City, N. J., May 4. Dr. Eugene M. Landis, University of Virginia Hospital, Charlottesville, Va., Secretary

American Society of Clinical Pathologists, Philadelphia, June 57 Di Alfred S Giordano 531 North Main St, South Bend, Ind., Secretary

American Therapeutic Society, Atlantic City, N J June 56 1 B Hunter, 1835 Eye St NW, Washington, D C, Secretary American Urological Association, New York, June 14 Dr Deming, 789 Howard Ave, New Haven, Conn, Secretary Dr Clyde I

Arizona State Medical Association, Prescott, May 25 30 Dr W. Warner Withins, 15 East Monroe St., Phoenix, Secretar;

Arkansas Medical Society, Hot Springs National Park Apr 27 29 Dr W R Brooksher, 602 Garrison Ave., Fort Smith, Secretar;

Association for the Study of Internal Secretions, Atlantic City N J., June 8 9 Dr Henry H Turner, 1200 North Walker St., Oklahoma City, Secretary

Association of American Physicians, Atlantic City N. J., May 56 Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary

California Medical Association, Del Monte, May 47 Dr George H Kress, 450 Sutter St, San Francisco, Secretary

Connecticut State Medical Society Middletown, June 34 Dr Creighton Barker, 258 Church St., New Haven, Secretary

Georgia, Medical Association of, Augusta, Apr 28 May 1 Dr E D Shanks, 478 Peachtree St NE Atlanta, Secretary

Illinois State Medical Society, Springfield, May 19 21 Camp, 224 South Main St. Momouth, Secretary. Kansas Medical Society, Wichita, May 11 14 Mr C G Munns, 112 West Sixth St, Topeka, Executive Secretary

Louisiana State Medical Society, New Orleans, Apr 27 29 Talbot, 1430 Tulane Ave, New Orleans, Secretary Dr P T

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr 28 30 Dr Richard T Shackelford, 1211 Cathedral St., Baltimore, Scottery Massachusetts Medical Society, Boston, May 26 27 Dr Michael A Tighe, 8 Fenway, Boston, Secretary Medical Library Association, New Orleans, May 79 Miss Anna C Holt, 25 Shattuck St., Boston, Secretary

Mississippi State Medical Association, Jackson, May 12 14 Dr T M Dye P O Box 295, Clarksdale, Secretary

Missouri State Medical Association, Kansas City, Apr 27 29 Mr E II Bartelsmeyer, 634 North Grand Blvd, St Louis, Executive Secretary National Gastroenterological Association, New York June 35 Randolph Manning, 1819 Broadway, New York, Secretary

Attonal Tuberculos s Association, Philadelphia, May 69 Dr. Charles J Hatfield, 1790 Broadway, New York, Secretar)

Nebraska State Medical Association Omaha May 47 Dr R B Adams, 416 Federal Securities Bldg, Lincoln, Secretary New Hampshire Medical Society, Manchester, May 12 13 Dr Carleton R Metcalf, 5 South State St, Concord, Secretary

New York, Medical Society of the State of, New York Apr 27 30 Dr. Peter Irving, 292 Madison Ave., New York, Secretary

New York State Association of Public Health Laboratories, Cooperstown, May 18 Miss Mary B Kirkbride, New Scotland Ave, Albany, Secretary

North Carolina Medical Society of the State of, Charlotte, May 1113 Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary

North Dakota State Medical Association Jamestown, Maj 18 20 Dr L W Larson, 221 Fifth St., Bismarch, Secretary

Ohio State Medical Association, Columbus Apr 28 30 Mr C S Nelson 79 East State St, Columbus, Executive Secretary

Pacific Coast Oto-Ophthalmological Society, Portland, Ore, May 1114
Dr C Allen Dickey, 450 Sutter St., San Francisco, Secretary.
Pacific Northwest Medical Association, Portland Ore June 1720. Dr
C W Countryman, 407 Riverside Ave., Spolane, Secretary.
Rhode Island Medical Society, Providence, June 34
Buffum, 122 Waterman St., Providence, Secretary
Society, for the Study of Arthury and Alled Conditions, Atlantic City.

Society for the Study of Asthma and Allied Conditions Atlantic City, J., May 2 Dr W C Spain, 116 East 53d St., New York, Sec

South Carolina Medical Association, Myrtle Beich, May 1921 D. Julian P Price, 105 West Cheves St., Florence, Secretary Julian P Price, 105 West Cheves St., Florence, Secretary South Dakota State Medical Association Shour Falls May 1315 Dr. South Dakota State Medical Association Shour Falls May 1315 Dr. Help-Texas State Medical Association of Houston May 1114 Dr Helm-Taylor 1404 West El Piso St. Lett Worth Secretary

# Current Medical Literature

### **AMERICAN**

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time Periodicals are available from 1932 to date Requests for issues of earlier date cannot be filled Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested) Periodicals published by the American Medical Asso ciation are not available for lending but can be supplied on purchase Reprints as a rule are the property of authors and can be obtained for permanent possession only from them

Titles marked with an asterisk (*) are abstracted below

### Anesthesiology, New York 3:1-122 (Jan ) 1942

Efficiency of Mixtures of Barium and Calcium Hydroxides in Absorp tion of Carbon Dioxide in Rebreathing Appliances J Adriani, New Orleans, and D H Batten Brooklyn-p 1 evelopment of Anesthesia (continued) T E Keys Rochester, Minn

Development of Anesthesia (continued) -p 11

Effects of Morphine, Atropine and Scopolamine on Human Subjects C P Wangeman, Vancouver, Wash, and M H Hawk, Wadison, W15-p 24

*Role of Picrotoxin in Treatment of Acute Barbiturate Poisoning R K Richards and J G Menaker Chicago —p 37 Combined Use of Ephedrine and Epinephrine in Spinal Anesthesia

Preliminary Report S Rochberg and Virginia Apgar, New York -p 49
*Serial Spinal Anesthesia T P Haugen, H S Ruth and I B Taylor,

Philadelphia -p 52

The Anesthetist's Interest in Lipiodobronchography R B Sommerfield, Los Angeles -p 61

Fluid Therapy Before and After Operation J H Fine, Beverly, Mass —n 65

Role of Alkaloids of Belladonna Plants in Clinical Anesthesia M L Phelps New York -p 71

Massive Atelectasis During Anesthesia Case M C Peterson and I M Pallin New York—p 79

Picrotoxin in Acute Barbiturate Poisoning -Richards and Menaker cite 11 cases of barbiturate poisoning treated with picrotoxin In 1 case 105 grains (7 Gm) of soluble phenobarbital and 1,944 mg of picrotoxin were used, and recovery ensued Five of the 11 patients died With the exception of 1 patient who ingested only 18 grains (12 Gm) of soluble phenobarbital, all of them presented severe poisoning lished reports on the use of picrotoxin reveal that the authors attribute to the drug an important, frequently a life saving, role Sudden acute death from respiratory failure due to oral barbiturate poisoning is rare, in fact, most of the patients who die do so two to five days after ingesting the drug. Death is due to general depression, to cerebral edema or to pulmonary complications Treatment must be directed against these danger ous symptoms and the underlying cause for them removed Experimental and clinical data indicate that picrotoxin possesses an extremely potent stimulating action on the depressed centers Picrotoxin in barbiturate poisoning is not a panacea, and its use means neither that the problem is solved nor that other forms of treatment are superfluous

Serial Spinal Anesthesia - Haugen and his coworkers believe that the term "continuous spinal anesthesia" does not adequately describe Lemmon's technic and suggest "serial [repeated] spinal anesthesia" Their clinical experience, although meager, confirms the belief that the element of control introduced by the method is a definite advantage for many types of operation the initial dose is smaller, which increases safety, the anesthesia may be maintained over a prolonged period, failure may be prevented in the rare case in which a large dose is required. The disadvantages are largely technical, one of them being that special equipment is required

# Maine Medical Association Journal, Portland 33:1-20 (Jan ) 1942

H T Karsner, I H Pratt W B Medical Queries Answered

Dameshek Boston and J Gottlieb Lewiston-p 1 The More Common Chemical Values and Their Clinical Interpretations Including Chemotherajeutic Levels J Gottlieb and M Chapin, 1 cuiston -p 10

# New England Journal of Medicine, Boston 226:81-126 (Jan 15) 1942

Results of Fifteen Years of Cancer Control Program in Massachusetts H L Lombard and Frances A Macdonald, Boston —p 81
The National Physicians Committee S B Weld Hartford, Conn —

p 84 Value of Auscultation of Abdomen in Intestinal Ol truction N C Stevens Walpole N H-p 87

Ewing's Tumor Report of Case Demonstrating Characteristic Periodic Course C P Roberts Boston—p 90

Syphilis C G Lane and G M Crawford, Boston—p 97

### 226:127-172 (Jan 22) 1942

*Salmonella Suspestifer Infection in Boston Report of Eleven Cases with Autops Findings in Case of Bacterial Endocardits Due to This Organism, and Study of Agglutination Reactions in This Infection N E Goulder Margaret F Kingsland and C A Janeway, Boston —p 127

*Action of Furmethide (Furfuryl Trimethyl Ammonium Iodide) on Bladder in Patients with Urinary Retention Following Surgery Rectum Preliminary Report J H I ipton, S B Berser and M D Altschule Boston -p 138

Primary Adenocarcinoma in Meckel v Diverticulum H L Albright and J S Sprague, Boston -p 142

Endometriosis J V Meigs, Boston -p 147 Gy necology

Salmonella Suipestifer Infection-From their survey of the clinical features of Salmonella surpestifer infections it is apparent to Goulder and his collaborators that although the disease tends to follow a course similar to typhoid it may localize in any site. The most frequent sites are the lungs, bones and joints. The infection appears most often when the resistance of the patient is low Therefore epidemics of S suspestifer infection tend to develop in populations already weakened by starvation and exposure, and the disease often appears sporadically in persons with some chronic disease Thus fact may account for the resulting high mortality rate authors report the fourth case of endocarditis due to S suipestifer Except for the bacterial endocarditis, the postmortem observations in their patient, a woman of 58, were the usual ones The salient features of the 4 cases of proved bacterial endocarditis due to S suspestifer were in 3 endocarditis superimposed on a valve already damaged by rheumatic infection or syphilis, embolic phenomena, a high fever with chills and leuko cytosis in all and changing murmurs in 3. The sulformide drugs were used in 3 of the 4 patients, but there was no evidence that the drugs had any appreciable effect. Their case of S supestifer endocarditis prompted the authors to review the occurrence of S suspestifer infection during the last six years as encountered in the clinics cooperating with the Peter Bent Brigham Hospital There were 10 instances of sporadic infection due to the European type of S suspestifer, 6 occurred in children, 2 in newborn infants and 2 in parturient women. One of the newborn infants died after both bacteremia and meningitis had developed. All the patients had a high fever for eight to thirty-eight days, 8 had positive blood and 3 positive stool cultures The patient with bacterial endocarditis had positive stool, urine and blood cultures. The composite clinical picture included chills and fever, coryza and pharyngitis, pneumonia, splenomegaly, abdominal pain, vomiting, distribea, arthritis, meningitis and bacterial endocarditis. If the bacteremia was uncomplicated the leukocyte count tended to remain low, but, once the infection localized, lcukocytosis usually developed. The serum of most of the patients with S surpestifer infection had high agglutination titers which persisted for a few months to six years after the infection subsided. Standard antigens and properly prepared antiserums should be used for identifying the various Salmonella organisms

Furmethide -Lipton and his associates observed the action of furmethide (furfuryl trimethyl ammonium iodide) given orally and subcutaneously on the bladder of 12 normal subjects and on the atome bladder of 3 patients after a one stage abdominoperitoneal resection for adenocarcinoma of the rectum Its effect was to increase tone and restore atom to or toward normal. The drug effectively controlled the dysfunction of the bladder in the 3 patients Although side reactions may be appreciable after large doses, it is possible to find an effective dose that does not cause significant disconcerning side effects such as salivation, sweating a feeling of warmth and a de ire

# New Jersey Medical Society Journal, Trenton 39:57-128 (Feb.) 1942

Responsibility of Medical Profession Toward Political Institutions of Nation. W. P. Eagleton, Newark -p 68

Amphetamine (Benzedrine) Sulfate and Thyroid Extract in Treatment

of Obesity: Observations on Five Hundred Cases S W. Kalb,

*Simple Method of Timing Blood Coagulation. C. H Knauer, Trenton. -p. 75.

Role of General Practitioner in Appendicitis R A Schaaf, Newark -p. 76.

Emotional Factor in Bronchial Asthma. J. A. Haiman, New York -p 80.

Relation of General Hospital to Psychiatry. J B Gordon, Marlboro -- p 84.

Timing Blood Coagulation.-Knauer outlines a method for determining the coagulation time of the blood. He recommends the use of a hypodermic syringe with a slightly larger needle than is used ordinarily. Blood is withdrawn from a prominent vein, a few bubbles of air are drawn into the syringe, the syringe is laid on its side for three minutes and then it is tilted slowly from end to end so as to permit the bubbles with their interspaces of blood to travel slowly from one end to the other at intervals of fifteen seconds. It is soon observed that the rapidity with which the bubbles traverse the length of the syringe is decreased with the formation of the clot and that thirty to forty-five seconds transpires between the onset of clot formation and its completion. This is noticed by the almost complete immobility of the bubbles

# New Orleans Medical and Surgical Journal

94:361-410 (Feb.) 1942

Study of Effect of Combustion Products of Natural Gas on Public Health H G. Beck, Baltimore -p 361

Myocardial Dysfunction Due to Vitamin B1 (Thiamine Hydrochloride)

Deficiency A Eustis, New Orleans -p 369

Treatment of Arthritis A A Herold, Shreveport, La -p 375 Industrial Eye Injuries and Their Treatment. A W. Martin, Bogalusa, La -p 381

Milder Thyroid Deficiencies L. Jones, Alexandria, La -- p 384 *Condylomata Acuminata I. W Kaplan, New Orleans -- p 388. Use of Enteric Coated Pills in Allergic States Preliminary Report of Eighty-Two Cases N. I. Thiberge, New Orleans -p 390

Acuminate Condylomas.—Kaplan suggests the application of 25 per cent podophyllin in liquid petrolatum to all condylomatous masses. Six to eight hours after the application pain, which usually requires codeine sulfate or morphine for relief, is experienced. During the next twelve hours a decided local reaction, with inflammation and edema throughout the tissues near the site of application, ensues. On the second or the third day the condylomas begin to slough off and the pain ceases On the fourth or fifth day the tissue returns to normal. No scarring is visible. A single application is usually sufficient. A weaker solution requires repeated applications, and the pain is almost as severe. In this manner the author cured 20 patients who had acuminate condylomas and venereal warts.

# Ohio State Medical Journal, Columbus

38:101-200 (Feb) 1942

Teaching Nutrition to People Who Take Their Noonday Meals Out
Alice H Smith, Cleveland -p. 117.

Primary Carcinoma of Gallbladder: Report of Two Cases. O Berg

Treatment of Patient with Type No 17 Pneumococcic Meningitis Recovery. C. W. Kumpe, Hillshoro, and R. G. Cook, Camp Forrest, Tenn—p. 128.

Pustular Psoriasis Report of Case B. P. Persky, Cleveland —p 130.
Congenital Dermoid Cysts of Nose R S. Rosedale, Canton —p 132.
Lymphogranuloma Inguinale B Seligman, Toledo —p. 135
Trichomonas Vaginalis Urethritis and Its Treatment. A. G Sar-Louis,
Cleveland —p. 137

Cleveland.—p 137. Sdicosis M. B Rusoff, Columbus—p 138

Concurrent Tuberculosis and Pernicious Anemia, J. H Skavlem and

C. H. Storey, Cincinnati -p 142. Gastrointestinal Allergy: Case Report. L. Sternberg, New York -p 145
Poison Ity Dermatitis L. Goldman, Cincinnati, -p 146.

Periarteritis Nodosa with Peripheral Polyneuritis and Hyperglycemia: Case Record Presenting Clinical Problems R. R. Williams and Pearl Zeek, Cincinnati -p. 148

# Oklahoma State Medical Assn. Jour., Oklahoma City 35:1-46 (Jan.) 1942

Relation of the Mental Hospital Physician to the Patient and His Rela

thes J. L. Dav, Supply.—p 1.

Hemorrhoidectomy, with Special Reference to New Technic and Avoid ance of Pain E Moore, Oklahoma City.—p 4.

Present Dav Conception of Convulsive Disorders. C. R. Rayburn,

Norman -p 8

Experience with Amebic Disenters in Northeastern Oklahoma G K Hemphill, Pawhuska—p 12 Mastoiditis: Case History. F. Vieregg, Chinton—p 14.

# Public Health Reports, Washington, D. C. 57:65-108 (Jan. 16) 1942

Distribution of Health Services in Structure of State Government Chapter III Tuberculosis Control by State Agencies. J. W. Mountin and Evelyn Flook -p. 65.

Pigment of Malaria Parasite D B. Morrison and W. A. D. Anderson -p 90

57:109-148 (Jan. 23) 1942

Isolation of Coccidioides from Soil and Rodents. C W. Emmons —p 109.

Studies on Duration of Disabling Sickness: III. Duration of Disability from Sickness and Nomindustrial Injuries Among Male Employees of Oil Refining Company, with Particular Reference to the Older Worker, 1933 to 1939 Inclusive W. M. Gafafer, Rosedith Sit greaves and Elizabeth S Frasier -p. 112.

*Incidence of Cancer in Dallas and Fort Worth, Texas, and Surrounding Counties, 1938 A J. McDowell -p. 125.

# 57:149-188 (Jan 30) 1942

Nutritional Deficiency and Infection I Influence of Riboffixin or Thiamine Deficiency on Fatal Experimental Pneumococcic Infection in White Mice J G Wooley and W. H Schrell—p 149.

Role of Parasite Pigment in Malaria Paroxysm. D B. Morrison and W A D Anderson—p 161

### 57:189-216 (Feb. 6) 1942

Nutrition Survey of Population Groups. Report of Conference on Methods and Procedures -p 189. Present Status of Tull Time Local Health Organization F. W. Kratz ---р. 194

Incidence of Cancer in Texas.-McDowell states that the total of 2,592 cases of cancer reported for Dallas County and the 1,091 for Tarrant County during a study year makes the rate for the prevalence of cancer among residents of this area 140 per hundred thousand, a rate higher than that in any of the five cities surveyed so far except Atlanta · 24 for Chicago, 25 for Pittsburgh, 37 for Detroit, 129 for New Orleans and 157 for Atlanta. The primary sites most often involved among males in the order of frequency were the skin, the buccal cavity, the digestive tract and the genitourinary system Among women the order is the genitourinary system, the breasts, the skin and the digestive tract. There was a clear relationship between the primary site and the age of the patient. The percentage of cases of cancer of the prostate, the skin and, to a lesser extent, the digestive tract increased as age increased; malignant growths of the female breast and uterus and all respiratory cancers were most frequent in persons in the middle portion of the life span, while cancer of the brain, bones and "all other sites" was relatively more frequent in persons less than 35. At least 23 per cent of the patients died within one year of the diagnosis of their cancer, 60 per cent of those with cancer of the digestive tract and brain, only 3 per cent of those with cutaneous cancer and 10 per cent of those with malignant growths of the buccal cavity.

# Rhode Island Medical Journal, Providence 25:1-22 (Jan.) 1942

General Introduction to Therapeutic Psychoanalysis. G H Alexander, Providence -p 1. Toxemia of Pregnancy. Study of 273 Cases. W. S Jones, Providence

# South Carolina Medical Assn. Journal, Florence 38:1-30 (Jan.) 1942

Some Historical Aspects of the Medical College of the State of South Carolina R. Wilson, Charleston —p 1. Recent Activities at Medical College. J. I. Waring, Charleston —p 4. Cervical Arthritis. O B. Chamberlain, Charleston —p 7. Present Concept of Shock. E F. Parker, Charleston —p. 12.

## Southern Medical Journal, Birmingham, Ala. 35:123-224 (Feb.) 1942 Partial Index

Rural Obstetrics Report of Work on Frontier Nursing Service J H

Kural Obstetrics Report of Work on Frontier Nursing Service J H
Kooser, Hyden, Ky—p 123

*Scarlet Fever Immunization I Evaluation of Some Methods of Immuni
zation Over Fifteen Year Period H C Graham, Tulsa Okla—p 132

*Meat Borne Typhoid Outbreak in Tennessee P H Duff, Crossville,
Tenn, and A E Hardison, Nashville, Tenn—p 139

Hemolytic Streptococcus Infections in War Time C S Keefer, Boston

—р 143

General Concept of Etiology of Functional Menstrual Disturbances
J C Burch and Doris Phelps, Nashville Tenn—p 150
Irretures of Astragalus H B Boyd and R A Knight, Memphis Tenn —p 160

Carcinoma of Colon, Factors Influencing Prognosis G V Brindley, Temple Texas—p 171 Venereal Disease Control in National Defense Program G R Rown

Venereal Disease Control in National Detense Program G R Rown tree C M Fischbach and H R Leavell Louisville K₃—p 187 Functional Dermatoses G V Stryker St Louis—p 193 *Milk, a Human Poison M T Davidson, Birmingham, Ala—p 196 Interpretation of Hypertensive Fundus J M Baird and G E Clay, Atlanta Gr—p 199 *Sulfapyridine and Sulfathiazole Therapy in Lobar Pneumonia W H

Kelley Charleston, S C-p 203 Chemotherapy of Pneumonia T J Abernethy, Washington D C

-p 210

Lung Cysts W W Anderson Atlanta Ga -p 216

Scarlet Fever Immunization.—Graham evaluates some of the methods for immunization against scarlet fever. The intranasal, the oral, the munction and the intradermal methods are inadequate The intranasal method is inadequate unless rechecked by the Dick test every one to three years, and when the reaction again becomes positive additional antigenic stimulus must be administered until the Dick reaction is negative or protec tion may not be sufficient. The Dick subcutaneous injection method confers the most lasting immunity. When reactions follow it is likely that among the subjects who react there will be a higher percentage with a reversal to a positive reaction than among subjects with no reactions With the Dick method the author has secured an 84 per cent immunity over a period of fifteen years The test compares favorably with plain toxoid (78 per cent) but is probably inferior to the immunity obtained with two or three injections of alum precipitated toxoid For general use the Dick method is superior to any

Meat Borne Typhoid Outbreak - Duff and Hardison give an account of 7 cases of typhoid in Cumberland County, Tenn with 2 deaths Investigation suggested that the only common factor of epidemiologic significance for 4 of the patients was the food served for Thanksgiving dinner. The only food prepared outside the home was souse, or head cheese This product was eaten also by 2 of the other patients Study of the avenue of infection disclosed that the souse had been prepared by a white woman who had had typhoid in 1930 and who for several years afterward had had attacks of nausea, vomiting, abdominal discomfort and pains in the region of the gallbladder Successive enteric cultures confirmed the suspicion that she was a typhoid carrier The seventh patient in the outbreak had not eaten any of the souse but since she had been in continuous contact with her daughter, who had known typhoid, it was assumed that the disease in her was secondary Eberthella typhosa was isolated from the souse three months after its preparation

Milk, a Human Poison - Davidson studied the role that milk played in producing allergic symptoms among 100 patients at least 6 years of age whose manifestations (not due to seasonal pollens) justified complete testing and of 20 infants and children up to 4 years of age Of the 100 patients 82 reacted to milk, 70 to egg 39 to wheat 50 to cottonseed, 95 to house dust and 90 to hairs, respectively symptoms were produced by these allergens in 40, 27, 8 6, 51 and 9 per cent of the patients Of the children 85 per cent reacted to milk, 63 to egg, 60 to wheat, 44 to cottonseed 71 to house dust and 75 to hairs, and the allergens produced symptoms respectively in 55, 40, 40, 10 45 and 10 per cent of the children The symptoms complained of by the older group of patients were, in order of frequency asthma hay fever, urticaria, eczema migraine gastrointestinal upsets, conjunctivitis and acne, for the children they were asthma, eczema, hav fever and urticaria. The author believes

that in any allergic syndrome of perennial occurrence there is a 40 per cent or better chance that milk plays a leading role m producing the symptoms

Sulfapyridine and Sulfathiazole in Pneumonia.-Kellev used sulfapyridine for treating 213 and sulfathiazole for 100 patients with lobar pneumonia. In all 16, or 75 per cent, of the patients given sulfapyridine and 7, or 7 per cent, of those given sulfathiazole died. If the patients who died during the first day of treatment are omitted, the respective fatality rates become 51 and 3 per cent. As is usually found, the mortality rate was greater among patients past their vouth and in those with bacteremia, extensive pulmonary consolidation or antecedent disability The benefits from sulfapiridine and sulfathiazole were similar, although with the latter the concentrations of the free drug in the blood as a whole were greater and relief of the acute illness was generally more prompt Nausea and vomiting were far more frequent when sulfapyridine was used. Certain patients with renal damage had dangerously high levels of the free drug in the blood after a relatively short period of treatment with sulfathiazole

### Southwestern Medicine, El Paso, Texas 26:1-32 (Jan) 1942

March of Medicine W H Woolston, Albuquerque, A Witch of Medicine W H Woolston, Albuquerque, A M-p 2
Treatment of Heart Disease in Childhood S Gibson, Chicago—p 4
Hypothyroidism P J Connor and J Muer, Denver—p 8
Sterilization of the Unfit W W Branch El Paso Texas—p 11
Effect of Electromagnetic Radiations on Flocculation Tests for Syphilis
E L Breazeale, Tucson, Ariz—p 13

### Surgery, Gynecology and Obstetrics, Chicago 74 · 129 - 272 (Feb.) 1942

Experimental Study of Ureterointestinal Implantation V Destiny of Implanted Ureter F Hinman and H M Weyrauch San Francisco -p 129

Excision of Head of Pancrens for Carcinoma with Studies of Its Blood Supply H R Ziegler, Rochester, N Y—p 137
Aseptic Resection of Stomach for Carcinoma and Ulcer E Holman, San Francisco—p 146

*Human Bites of Hand H Miller and J M Winfield Detroit -

Interscapulothoracic Amputation for Malignant Tumors of Upper Extremity Report of Thirty One Consecutive Cases G T Pack G McNeer and B L Coley New York—p 161

*Treatment of Peritonitis Intraperitoneal Use of Sulfonamides Based on Animal Experiments C H Epps E B Ley and R M Howard,

on Animal Experiments C. H. Epps E. B. Ley and R. M. Howard, Oklahoma City.—p. 176
Retrocecal Appendix. Its Diagnosis and Surgical Approach. W. T. Harsha, Chicago.—p. 180
Tonus of Uterus During Pregnancy and Its Relation to Labor. Study of 1,028 Observations Made with Lorand Tocograph. D. P. Murphy, Physical Phys. 182 Philadelphia -p 182

Functional Anatomy of Labor as Reveiled by Frozen Sagittal Sections in Macacus Rhesus Monkey D N Danforth, R J Graham and

m Macacus Rhesus Monkey D N Dinforth, R J Graham and A C Ivy Chicago—p 188

Recurrent I racture W A Evans Jr., Detroit—p 204
Implantation of Ureters into Rectosigmoid with Study of Postoperative Course E J Poth, Baltimore—p 221

Internal Wire Fixation for Fractures of Jaw Preliminary Report J B Brown and F McDowell St Louis—p 227

Reaction of Bone to Metals II Lack of Correlation with Electrical Potentials R T Bothe and H A Davenport Chicago—p 231

*Management of Acute Embolic Occlusion of Arteries to Extremities L N Atlas Cleveland—p 236

Minagement of Acute Embolic Occlusion of Arteries to Extremities L \ Atlas Cleveland —p 236
Gistrostomy Jejunal Intubation J D Bisgard Omaha —p 239
Multiple Myeloma R k Ghormley, G A Pollock, B E Hall and L H Beizer, Rochester, Minn —p 242
Surgical Anatomy of Superior Hypogastric Plexus Report of 150
Personal Dissections B B Weinstein New Orleans —p 245
So Called "Iodine Resistant," Hyperthyroidism J I kearns Jr and P Starr Chicago —p 256
Hazards of Lite and Explosion of Anesthetic Agents II In Presence of Cautery B A Greene, Brooklyn —p 259

Human Bites of Hand-Miller and Winfield state that injuries from human bites range from actual bites of the phalanges and hand to puncture wounds and lacerations produced by a fist striking exposed teeth. A more rare mechanism is that of sucking hanguails or the contamination with mouth organisms of a clean lacerated wound by a concerned bystander. Early infections due to human bites consist almost twice as often of lacerations of the fingers as of lacerations of the knuckles. In cases of late infection the reverse is true. The injury presented may be a simple cutaneous abrasion over the phalanges knuckles or palmar surface of the hand or wrist, a complete avulsion of the cutaneous and subcutaneous segments and occasionally of the bone, a penetrating laceration either partially or

completely severing the extensor tendon or a wound which may have opened into the dorsal subcutaneous space, subtendinous bursa, dorsal subaponeurotic space or the joint cavity. The routine treatment employed is to wash gently the area about the wound with soap and water for five minutes and then the wound itself and then to irrigate the wound with saline solution for ten minutes. The wounds are not probed. After the mechanical cleansing and probably a limited débridement, wet dressings are applied. No attempt is made to repair the rent in the joint capsule. Hands are splinted in the position of function. Lacerations are never sutured, nor are injuries to deeper structures repaired. Patients return daily for examination, and if a joint is involved they are usually hospitalized. Sixty-one early infections from human bites of the hand have been given prophylactic treatment during the last three years. Fifty-five of the wounds remained clean, five became mildly inflamed and one became grossly infected. The average wound healing time was eight and five-tenths days. After-care consisted essentially of splinting and the application of continuous compresses of saline solution, boric acid or magnesium sulfate for forty-eight hours, when they were discontinued if the wound remained clean, Splinting was continued until healing was complete. The therapy of human bites seen late, which are already serious and sometimes extensively infected, should emphasize adequate surgical intervention and earlier and more radical drainage. The hand is thoroughly cleansed under general anesthesia, as much infected and gangrenous sloughing tissue is removed as possible and areas of infection are adequately drained. The deepest anatomic plane involved should be inspected. Infection of the joint, if adequately drained, need not result in an ankylosed joint; excellent function may be obtained. One should be slow to amputate extensively infected fingers, but extensive drainage of the soft parts is essential. Amputation should be avoided when acute infection is present. After the wound has been cleansed and debrided and drainage has been established it is loosely packed with petrolatum gauze, and massive wet antiseptic dressings are applied. The fingers, hand and arm are splinted in the position of function and arranged so as to favor drainage. Patients with such wounds should be hospitalized. Of the 54 patients with late infected injuries due to human bites, 13 remained with stiff fingers. Despite the severity of these infections, the average healing time was thirty-four days and the average hospitalization period was nine and four-tenths days. There were no fatalities. These infections are prone to recur and exacerbate frequently. There were 3 instances of recurrence among the

Treatment of Peritonitis .- Epps and Howard studied the effect of four sulfonamides on experimental appendical peritonitis, comparable to that in man, in 70 dogs. In a control group of 10 untreated dogs the mortality rate was 100 per cent. The therapeutic value of the local application of sulfabenamide, sulfanilamide, sulfapyridine sodium and sulfathiazole was determined. The results seem to indicate that subcutaneous or intraperitoneal administration is preferable to the intravenous route. This is explained by the relatively short action of sulfanilamide when given intravenously. Of the four drugs used intraperitoneally, sulfathiazole was the most effective, probably because part of the drug was given in suspension, allowing a longer time for action before absorption was complete. The number of dogs given one of the sulfonamides was small; however, the authors are certain that any one of the drugs may be administered intraperitoneally with safety and without deleterious effect to the peritoneum or intraperitoneal organs. The usual toxic manifestations must be anticipated and the patient treated accordingly if they arise. Sulfapyridine sodium has been used intraperitoneally in a 4 per cent solution for 10 patients at the Oklahoma University Hospitals. The results have been spectacular. When the drug was given only by the intraperitoneal route, serious toxic manifestations were not encountered.

Acute Embolic Occlusion of Arteries to Extremities. -According to Atlas, when an artery in an extremity is acutely obstructed by an embolus it is necessary to restore immediately sufficient circulation to the limb to preserve its viability and to promote therapeutically a collateral circulation, so that the functional capacity of the limb as well as its viability will be preserved. Both are accomplished by increasing the volume

rate of blood flow through the available collateral circulation, Any method that augments the quantity of blood flowing through a collateral arterial network diminishes the peripheral resistance to blood flow through a dilatation of the arteriolar-capillary bed into which collateral vessels empty. Since ischemic tissue is saturated with vasodilating substances, such an increase in the flow of blood through collateral channels would automatically follow the acute occlusion of a principal artery. Often an effective collateral circulation develops without therapcutic assistance. There would be many more such instances if it were not for the fact that, when an embolus suddenly occludes a peripheral artery, the arterial bed in that extremity, and sometimes in the opposite extremity, is thrown into a greater or lesser degree of spasm. An embolus lodged in the distal portion of an extremity may reflexly render the more proximal and larger arteries pulseless. Unless spasm is considered, these larger spastic vessels may be surgically explored for the purpose of removing what is erroneously considered to be the offending embolus. When the collateral circulation in an extremity rendered acutely ischemic is so spastic that vasodilating substances surrounding it do not relax it, the use of heat as an additional dilating stimulus is not only illogical but dangerous. During the acute stage of an embolic occlusion, treatment should be concerned with relaxing spastic vessels and preventing their thrombosis. To secure relaxation the intravenous injection of 0.032 Gm. of papaverine hydrochloride every four hours for forty-eight hours and then three times a day for a week is almost specific. Heparin is administered to prevent thrombosis; 50 mg. is given intravenously every four hours. The limb is then swathed in cotton and protected with an unlighted cradle. After the spasm disappears, measures may be instituted to stimulate further the flow of blood through collateral channels. Local application of mild heat, rhythmic venous occlusion and suction pressure may be employed. Should the ischemia fail to improve or progress despite treatment, organic block of a major vessel must be considered and embolectomy performed. Persons who have sustained an embolic occlusion may present themselves several weeks after the accident. In them a periarteritis often involves the thrombosed vessel and stimulates afferent sympathetic neurons with resultant pain or reflex spasm of the collateral bed. The offending thrombosed arterial segment should be resected.

## Virginia Medical Monthly, Richmond

69:1-56 (Jan.) 1942

Public Health in Virginia. I. C. Riggin, Richmond.—p. 2. Management of Chronic Suppurative Pulmonary Disease. P. P. Vinson. Richmond .- p. 7.

Nephrectomy, with Comments on Diagnostic Procedures in Obscure Conditions. T. J. Hughes, Roanoke.—p. 14. Uterine Contractions in Labor: Effect of Analgesic Drugs. W. Bickers,

Richmond.—p. 15.

Hormonologic Consideration of Functional Dysmenorrhea. R. L. Pullen and E. C. Hamblen, Durham, N. C.—p. 19.

The Airplane, Possible Means of Transmission of Disease. W. P.

Jackson, Norfolk .- p. 29. Diabetes Insipidus Following Encephalitis. W. R. Jordan and W. R.

Graham, Richmond .- p. 35. Use of Heat in General Practice. B. Boynton, Norfolk .- p. 37.

Nasal Myiasis Due to Bot Fly Larva (Cuterebra sp.): Report of Case. R. G. Beachley, Arlington, and F. C. Bishopp, Washington, D. C. p. 41.

Infectious Diseases as Cause of Diabetes Insipidus. H A. Hoffman, Washington, D. C .- p. 42.

# Yale Journal of Biology and Medicine, New Haven 14:229-332 (Jan.) 1942

Lipotropic Substances. Elizabeth G. Frame, New Haven, Conn.—p. 229, Necrosis of Renal Pelvis Associated with Obstruction of Ureter-R. Katzenstein and M. C. Winternitz, New Haven, Conn.—p. 257. Studies on Relation of Kidney to Cardiovascular Disease: V. Lesions of Myocardium. S. H. Durlacher and M. C. Winternitz, New Haven, Conn.—p. 269.

Conn.-p. 269. Social Implications of Medical Science. J. P. Peters, New Haven, Conn.

Strabismus in New Haven Dispensary. C. C. Clarke, New Haven, Conn. -p. 279.

Bacteria and Formed Elements in Urine in Normal Pregnancy. J. W. Hirshfeld, D. C. Leary and W. R. Foote, New Haven, Conn.—p. 227. Some Physician Friends of Joseph Farington, R. A. G. H. Smith. New Haves. Haven, Conn .- p. 307.

### FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Dermatology and Syphilis, London 54:1-38 (Jan.) 1942

Hydrogen Ion Concentration in Therapeutic Bases. R. G. Harry.-p. 1. Chemicals in Fabrics as Potential Skin Irritants. H. E. Cox.-p. 22.

# British Journal of Radiology, London

15:1-32 (Jan.) 1942

Radiologic Aspect of Gastritis. F. R. Berridge.-p. 1. Effect of Ionizing Radiations on Broad Bean Root. L. H. Gray and

J. Read.—p. 11.

Gastroscopic Appearances in Gastritis. J. F. Dow.—p. 17.

Effect of Bone Absorption of Delivered X-Radiation and Its Relation to Predetermined Pelvic Dosage Schemes. B. Sandler.—p. 20.

Direct Reading Instrument for Measurement of Ionization Currents in Gamma Ray Therapy. W. A. Langmead.—p. 27.

### British Medical Journal, London

2:897-932 (Dec. 27) 1941

"Growth" and Diabetogenic Action of Anterior Pituitary Preparations.

*Treatment of Pulmonary Tuberculosis by Thoracoplasty. F. R. Edwards, G. Leggat and H. M. Davies.—p. 901.

Improved Method of Regional Anesthesia in Acute Abdominal Surgery. N. R. James and H. W. Burge.—p. 906.

Trichiniasis in Birmingham. L. J. Bacon.—p. 909.

Thoracoplasty for Pulmonary Tuberculosis.-Edwards and his collaborators adhered to the following indications in the treatment of 59 patients between 1933 and 1940: The disease must be unilateral and the lesion fibrotic, pneumothorax must have failed and the age of the patient should be between 15 and 45 and his general condition good. Of the patients 52 had parenchymatous disease and 7 had tuberculous empyema. A total of one hundred and fifty-eight thoracoplasties were performed, and a follow-up study in May 1941 showed that 35 patients (68 per cent) were fit and well and 30 of them able to work. Nine patients are still unfit or have a positive sputum, and 8 have died. Of these 52 patients 40 were considered "good risks" (30 of whom are fit and well and have a negative sputum) for thoracoplasty and 12 "justifiable risks." Of the 7 patients with tuberculous empyema 5 have died and 2 are not fit; 1 needs a plastic operation and 1 is losing weight. Operation undertaken on such patients before the general effects of the toxemia become too definite and the pleural membranes too thickened would undoubtedly result in more satisfactory results. The authors declare that from the public health point of view no person with a positive sputum should be at large in the community. A ten rib paravertebral thoracoplasty with removal of the transverse processes is the procedure of choice.

### Lancet, London

2:783-816 (Dec. 27) 1941

Bacterial Contamination of Cerebrospinal Fluid. W. Smith and Muriel M. Smith .- p. 783.

*Vitamin A

Vitamin A and Dark Adaptation: Effect of Alcohol, Benzedrine and Vitamin C. S. Yudkin.—p. 787. Significance of Intelligence in Skin Cases. G. A. Hodgson.—p. 791. Macrocytic Anemia in Pregnant Women on Gold Coast. Beatrice A. S. Purcell at 270. Russell.—p. 792.

Serum Calcium and Inorganic Phosphorus in Parathyroid Tetany: Their

Bearing on Treatment. J. D. Robertson.-p. 795. Resection of Head of Pancreas and Duodenum for Carcinoma. R. Maingot .- p. 798.

Vitamin A and Dark Adaptation.-Yudkin studied the effect on dark adaptation of giving 100,000 international units of vitamin A on an empty stomach to 24 patients. Food was taken after three hours. The dark adaptation was measured after one, four, seven, ten and twenty-four hours. The results varied, but usually an improvement in dark adaptation began in about two hours and was maximal in eight to ten hours. Within twenty-four hours the curve had usually returned to the original low state. A few patients did not have hemeralopia again for several days or even weeks. The final rod threshold, the final cone threshold and the rod-cone transition time all were usually affected. There would be no effect in an extremely deficient subject until several doses of 100,000 international

units were given, and then the reaction was transitory. After a few more doses the usual improvement and relapse would ensue. After still more doses the hemeralopic patient would not return for three or four days, after which a much smaller dose produced a result. The response to further large single doses lasted for weeks or even months. The author believes that the best way to decide whether a person's night blindness is due to a deficiency of vitamin A is that suggested by Steven and Wald, or the determination of "threshold lability," 'i. e. the fall from a high to a significantly lower final rod threshold after about ten large doses of vitamin A. The appearance of vitamin A in the blood four to five hours after any dose will show that the vitamin is being absorbed. Night blindness due to vitamin A deficiency will almost certainly improve after two large doses, but if no response occurs it may be assumed that the night blindness is not due to a deficiency of vitamin A. The value of giving 500 mg. of vitamin C for ten days, as suggested by Stewart and by Kimble and Gordon, was studied on 6 patients with poor dark adaptation. No improvement was observed, whereas the adaptation of all of them became normal after treatment with vitamin A. Yudkin concludes that vitamin A may not be the only factor affecting the complicated process of dark adaptation; any link in the chain may be affected: oxygen, hypoglycemia, amphetamine sulfate and alcohol may all affect dark adaptation; the latter two cause improvement and the former two deterioration. Congenital and hereditary night blindness and certain retinal diseases affect dark adaptation independently of the adequacy of vitamin A. Even when hemeralopia is cured with vitamin A it is not known which part of the metabolic cycle was at fault.

### 1:1-30 (Jan. 3) 1942

Natural History of Bright's Disease: Clinical, Histologic and Experimental Observations. A. Ellis.—p. 1. Zinc Peroxide Preparations, with Notes on Clinical Uses. C. Hoyle, J. W. Spence and S. H. Faulkner.—p. 7.

*Recovery from Granulocytosis After Rigor During Transfusion. R. M. Cross.-p. 9.

Anthrax Septicemia: Fatal Case. A. G. M. Severn.-p. 9.

Recovery from Granulocytopenia After Rigor During Transfusion.—Cross reports that an airman aged 20, who was inoculated on Aug. 18, 1941 with T. A. B. and ATT [antitetanus toxoid?], had pyrexia with a severe local reaction on August 19 and during the next ten days was given 42 Gm. of sulfapyridine by mouth. By this time he complained of tenderness of the lower gums and stiffness of the nuchal muscles, and the tonsillar glands were enlarged. The leukocyte count was 2,500 per cubic millimeter, and the granular leukocytes were absent. He was given intramuscular injections of 10 cc. of pentnucleotide twice a day for seven days. After 500 cc. of blood of group 0 had been given on September 1 the total leukocyte count increased to 3,500 and the neutrophils numbered 3 per cent. By this time the lower gums and cheek were ulcerated, the tonsillar glands were enlarged and painful and there was intermittent pyrexia, the temperature rising to about 100.2 F. After pentnucleotide had been given for two more days the total leukocyte count increased to 5,000, with 6 per cent neutrophils. A second transfusion was given on September 4 and the leukocyte count increased to 8,000, with 13 per cent neutrophils, Tenderness of the glands decreased, and the patient felt much better. A third transfusion was started on September 8 but had to be discontinued because the patient had a severe rigor lasting about fifteen minutes. Blood films taken immediately after the rigor showed a slight increase in the total leukocyte count and in the percentage of neutrophils. Four hours after the rigor, the temperature rose to 105.6 F. and the total leukocyte count was 40,000, with 85 per cent immature neutrophils. Next morning the temperature was normal, and in two days the ulceration of the gums was completely healed. During the next four days the total leukocyte count and the percentage of neutrophils gradually returned to normal and the cells appeared progressively more mature. The patient was discharged from the hospital on October 8, fully recovered. There was no question of transfusion of incompatible blood; so the cause of the pyrexia remains a mystery. Nevertheless it effectively aborted the granulocytopenia and suggests that artificial but controlled pyrexia, if used with caution, might be useful in aborting such attacks.

# Schweizerische medizinische Wochenschrift, Basel 71:1437-1464 (Nov. 15) 1941. Partial Index

Pregnancy Reaction According to Aschheim-Zondek and Its Modifications. E. Held.—p. 1437.
Aseptic Necroses. R. Meyer-Wildisen.—p. 1442.

Experimental Research on Nephritis and Its Significance for Clinical Aspects of Renal Diseases. M. Gukelberger.—p. 1445.
Etiology of Meralgia Paraesthetica. W. Jost.—p. 1448.
*Estimation of Patients with Heart Disease by Military Physician.
W. Hadorn,—p. 1449.

*Estimation of Rheumatic Disorders in Military Service. V. Heinemann. ---р. 1454.

Heart Disease and Military Physician.-Hadorn maintains that anatomic defects of the heart may result from functional disturbances. The assumption of spastic-functionalischemic-necrofic processes is entirely justified. Neurocardiac disturbances may develop into myocardial lesions without an intercurrent infection. One should pay attention to all the complaints of soldiers which refer to the cardiovascular system. The early symptoms of circulatory disturbances are nearly always subjective. The patients complain of palpitation, sweats, fatigue, dyspnea, insomnia, weakness, fainting and darting heart pains. Specific information should be sought as to the type of dyspnea. Pain in the cardiac region must be investigated. Formerly substernal pain was regarded as of organic origin, a symptom of ambulatory angina pectoris, whereas pain in the region of the cardiac apex was considered nervous or neurotic. Electrocardiographic records revealed that darting pains in the region of the heart may be of coronary or myocardial origin. Certain symptoms and minor alterations in signs, which were formerly overestimated and regarded as sufficient for rejection, are of no importance. Moderate palpitation is not significant. Palpitation and tachycardia are not identical; tachycardia by itself is of no particular importance. Respiratory arrhythmia and occasional extrasystole, if occurring alone, likewise do not establish the presence of heart disease. Although extrasystoles are no longer considered as "harmless mischief of the heart" (Wenckebach), the monotopic ones are of no particular importance when heart and circulation are otherwise normal. Electrocardiography reveals whether the extrasystoles are monotopic or polytopic. If extrasystoles appear immediately after exertion they are not harmless. Extrasystoles can be brought on by the use of nicotine, chronic constipation, meteorism and an elevated diaphragm. Every extrasystole demands a search for foci of infection. Auricular extrasystoles must be estimated differently from the ventricular ones, because they may become frequent and lead to paroxysmal tachycardia and auricular fibrillation. Paroxysmal tachycardias which appear only at great intervals do not render one unfit for military service. Systolic murmurs, formerly regarded as identical with mitral insufficiency, are generally of little importance. Attention must be given to a history of infections, articular rheumatism, chorea minor, diphtheria, syphilis, tonsillitis and infection of the teeth and sinuses. Coronary complaints should be taken seriously at any age. Objective examination by the military physician includes examination of the pulse, inspection, palpation and percussion of the cardiac region, roentgen examination and electrocardiography. Electrocardiography is most important. The simple test of holding the breath may be employed to determine the work capacity of the heart. Observations on the pulse frequency, blood pressure and respiratory rate before and after a certain exertion constitute the functional examination. Other tests mentioned are the "getting up reaction," the hepatic pressure test of Plesch, Volhard's test, the separate measurement of the day and night urines, the examination of the urine for urobilinogen, the roentgenologic examination of the lung for stasis, probatory strophanthin injection according to Fraenkel and the exertion electrocardiogram.

Rheumatic Disorders in Military Service .- According to Heinemann the incidence of rheumatism in the army has increased since the onset of the war, since older men have been called for prolonged service. The exertions and exposure of military service are contributing causes. A number of etiologic factors determine the variable symptoms of rheumatism. The control and supervision of rheumatic disease should be in the hands of physicians with special training and experience in rheumatism, so that suitable measures may be instituted

early, patients with hopeless disease discharged and unnecessary dismissals avoided. Antipyretics, salicylic acid and choline derivatives have proved effective in the treatment of rheumatic disorders. Aminopyrine proved particularly effective in chronic rheumatic disease. Sulfur normalizes the impaired blood perfusion of the skin. A catalytic activation of the mesenchyma with stimulation of its phagocytic activity is ascribed to the colloidal gold preparations. It has not been determined to what extent sulfonamide derivatives influence the course of rheumatism, but their use is indicated whenever infectious foci are found. Exercise should begin early, but during the acute stage rest should not be interrupted by gymnastics and massage, particularly in the presence of inflammatory articular exudates. Gymnastics and massage should be carried out only by well trained persons. Too little attention is given to the necessity of a lactoregetable diet. Static defects are often contributory causes in rheumatism, and they should be corrected by orthopedic treatment. Spread, sag and flat feet are the chief orthopedic defects that cause changes in the neighboring joints. Some complaints referable to the hip joint in soldiers are the result of an anlage to coxa vara. Men with static dynamic difficulties due to defects of the vertebral column can be kept in army service by transferring them to a unit requiring less physical exertion. The author regards the removal of suspected infectious foci advisable in spite of the realization of the plurality of causal factors of rheumatism.

## Día Médico, Buenos Aires

14:17-32 (Jan. 12) 1942. Partial Index

"Pseudocholangiopathic" Form of Coronary Thrombosis. P. A. Tapella. *Substitutes for Blood Transfusion. A. Battaglia .- p. 28.

"Pseudocholangiopathic" Form of Coronary Thrombosis.—Tapella reports 3 cases of typical acute coronary thrombosis associated with jaundice. The clinical diagnosis was confirmed by electrocardiograms. Jaundice appeared within twenty-four hours of the attack. It lasted for about ten days and disappeared in the next three or four days. Symptoms of disease of the liver, the gallbladder or the bile ducts were not present either before or after the coronary accident, although the patients were observed for two to four years after the attack. The gallbladder and bile ducts were normal when observed cholangiographically. The author believes that in this type of coronary thrombosis jaundice is due to a reflex which originates in the lower cardiac nerve, reaches the zone of confluence of the nerve with the great splanchnic nerve at the paravertebral sympathetic ganglions and stimulates the bile ducts through the great splanchnic nerve. The name pseudocholangiopathic coronary thrombosis is suggested for this type of attack.

Substitutes for Blood Transfusion .-- According to Battaglia the so-called blood substitutes or artificial serums are of value only in emergency, when blood plasma or blood serum cannot be obtained. The order of value of blood substitutes in acute hemorrhage is as follows: blood plasma, blood serum, Ringer-hemoglobin solution, isotonic solution of sodium chloride with acacia, erythrocytes suspended in crystalloid solutions, isotonic sodium chloride solution and isotonic dextrose solution. The therapeutic effects of blood plasma are as good as those of blood serum. Liquid plasma can be preserved only for a few weeks, after which there is danger of precipitation of fibrinogen. Plasma diluted in isotonic solution of sodium chloride up to approximately the primary volume of total blood can be preserved without precipitation for a long time. Desiccated blood serum and plasma can be kept indefinitely and used in various concentrations according to proper indications. The use of blood serum and plasma for transfusion does not involve blood group testing. These substances do not cause unpleasant reactions. When large doses are transfused it is advisable to use blood serum or plasma from donors of corresponding blowl groups. Artificial serums may be used as substitutes for blood transfusion only when compatible blood, blood serum or plasma is not available. Transfusion with blood serum or plasma is mainly indicated in shock of any origin, acute hurns, acute hemorrhage, hypoproteinemia, certain forms of nephrosis and intracranial hypertension.

# Book Notices

Youth and the Future. The General Report of the American Youth Commission. Cloth. Price, \$2.50. Pp. 296. Washington, D. C.: American Council on Education, 1942.

The American Youth Commission, which has heretofore published brief statements and pamphlets and has previously dealt with segments of the youth problem in book publications, now issues this general report, in which various phases of youth problems in depression, in prewar days and in war time are considered. The book has an explanatory foreword and introduction by Owen D. Young, chairman of the commission, and four principal parts. Part I contains five chapters dealing respectively with youth unemployment as a continuing problem, experience with youth work programs, work programs for youth in the future, relations between schools and youth work programs, and the problem of full employment. In part 11 are eight chapters touching on various phases of the basic problems of youth, such as general needs, education, occupational adjustment, the use of leisure time, marriage and the home, health and fitness, delinquency and youthful crime, and education for citizenship. In part III are four chapters dealing with the different aspects of responsibility for action for youth as they arise in communities, in state governments, in the federal government and in the relationships of public and private agencies related to planning and action for youth and by youth. Part IV has one concluding chapter entitled "Meaning for Life."

The book is a broad, comprehensive, sincere, inspiring and compelling study. Its conclusions are far reaching and far seeing. A real effort has been made to see the problem as a whole, regarding youth as one segment of our population, but a segment of tremendous potential importance, both for the present, the immediate future and the far distant horizons of national destiny. It is not to be expected that every reader will agree with the conclusions in the report, but every honest reader must admire the courage and respect the sincerity of the conclusions reached and those who reached them.

The medical profession is most concerned with those aspects of the report dealing with health and fitness. These are dealt with primarily in chapter 11 but are not overlooked elsewhere, as indicated by numerous subsidiary references to health and fitness in connection with other phases of the youth program. The report calls for greater attention to the health of youth, even though youth is essentially a healthful time of life, comparatively speaking. Youth, nevertheless, has definite problems, of which the four principal ones are listed as tuberculosis, the venereal diseases, appendicitis and rheumatic heart disease. The emotional and personality problems of youth are dealt with at considerable length, not only in this chapter but in others, with appropriate emphasis on the fundamental need of man at any age, namely emotional security and a sense of being needed. One could differ with details in the proposals of the commission, but one can hardly differ with its fundamental premises. For instance, one might be inclined to question the efficacy of a youth health program beginning with a physical examination at the age of 18, especially since dental defects, which are admittedly the leading deviation from normal in our nation, are probably determined in utero or immediately after birth.

The demand of the commission for something rather immediate in the way of health insurance systems, with the implication that nothing along this line has been done, could be questioned in the light of the widespread prevalence of hospital insurance plans and the experiments by medical societies and other agencies in attempting to arrive at a formula for delivering medical service to all the people at a price which the people can pay. Yet in the main the commission stands for those things for which the medical profession has stood; namely, free choice of physician and cash benefits.

100 Years of Medicine in Minnesota. Boards. Pp. 26, with illustrations. St. Paul: Minnesota State Medical Association, 1941.

The Minnesota State Medical Association, in celebrating the hundredth anniversary of the arrival in what is now the state of Minnesota of the first civilian practitioner of medicine, sent to community leaders and institutions a copy of this interesting booklet. The progress of medicine in Minnesota from the time Dr. Christopher Carli arrived at what is now Stillwater on May 24, 1841 is shown in pictures. Only twelve years later most of the twenty hardy doctors in the territory met in St. Paul to form the Minnesota Medical Society, the forerunner of the present state medical association, which has nearly three thousand members in thirty-four component county and district societies covering every section of the state. Close cooperation between the private practitioners and the Minnesota State Board of Health during these hundred years practically eradicated many of the diseases that scourged this territory. Today Minnesota is said to lead in the control of tuberculosis and syphilis and in the saving of mothers and babies. In 1841 more than half of the babies died before they were 5 years old and three fourths of the people died before they were 40. Today only 8.2 per cent of the babies die under the age of 5, and more than half of the deaths are delayed until after 60. Children as well as adults will be much interested in this pictorial history. The editorial material found here and there among the pictures will also appeal to practically all ages, and it is simply stated and very clear.

The March of Medicine. The New York Academy of Medicine Lectures to the Laity [Number VI], 1941. Cloth. Price, \$2. Pp. 154, with 3 illustrations. New York: Columbia University Press, 1941.

This collection of essays represents the sixth set of a series of lectures to the public at the New York Academy of Medicine. It is the third volume to bear this title, the other two having been published in 1939 and 1940. Since the purpose of the lectures is to show historically how medicine has developed and to present its social and cultural significance, each lecture should interest the physician and the layman and should be written in terminology requiring no special knowledge of medicine or the allied sciences. As in the past, the writers on the whole have pursued this goal with some success. After a terse foreword by Dr. Malcolm Goodridge, and a philosophic introduction by Dr. Haven Emerson, the collection presents articles entitled on humanism and science, by Dr. Alan Gregg, Paracelsus in the light of four hundred years, by Dr. Henry E. Sigerist, psychiatry and the normal life, by Dr. William Healy, philosophy as therapy, by Irwin Edman, Ph.D., the promise of endocrinology, by Oscar Riddle, Ph.D., and what we know about cancer, by Dr. Francis Carter Wood. A fairly adequate index completes the collection and is a somewhat unique feature for a book of this type. Although the essays are designed primarily for the layman, it is probable that only a select group will obtain the utmost from them, as the authors occasionally become too philosophic to maintain the interest of the average man in the street. Readers who have had more than the usual training in the various sciences should enjoy the book. As Haven Emerson said in his introduction, "Glamor and romance there is in abundance in medicine for student, practitioner and patient." The articles in this volume aid materially in stressing this fundamental truth.

Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases. By Richard P. Strong, Consultant in Tropical Medicine to the Massachusetts General Hospital and the Boston City Hospital, Boston. In Two Volumes. Sixth edition. Fabrikold. Price, \$21 per set. Pp. 871, with 197 illustrations: 872-1747, with 201 illustrations. Philadelphia: Blakiston Company, 1912.

Dr. Strong has taken over from Admiral Stitt, U. S. Navy, retired, the authorship of this work. While this is said to be a revision of Admiral Stitt's book, it is in fact a new work, much more comprehensive than its predecessor, largely rewritten and made also a book of reference to recent research. The comprehensiveness of the work is indicated in the opening chapter on malaria, which in itself comprises one hundred and thirtyfive pages, not counting a second chapter of some twenty-eight pages on blackwater fever. Knowledge of tropical diseases has increased much in recent years, and that too accounts in part for the increase in the size of the publication. The illustrations in some chapters are adequate. A helpful part is the appendix. In an index of clinical diagnosis are pointed out the diseases in which the symptoms associated with tropical diseases may arise. The second chapter of the appendix concerns laboratory procedures used in diagnosis; for example, under amebiasis the author advises one to examine the feces for cysts and trophozoites; also that amebiasis may show monocytosis, and that one should differentiate from bacillary dysentery and chronic nonspecific ulcerative colitis. The third section of the appendix, on tropical hygiene, discusses the effects of sunlight, altitude, storms, atmospheric pressure, heat, humidity, mountain climates, the effects of heat on the white and brown races, acclimatization and colonization; and this is followed by a discussion of the clothing, tropical housing, vaccinations that one should have on going to tropical climates, equipment, diet, infant feeding, beverages, water purification, sewage disposal and insects. Dr. Strong is eminently fitted to take up this work. He has served in various capacities in many tropical countries and now is a consultant to the Secretary of War on tropical medicine and a professor of tropical medicine emeritus at Harvard University. This work will take its rightful place among the great works on tropical medicine.

Clinical Roentgenology of Pregnancy. By William Snow, M.D., Director of Radiology, Bronx Hospital, New York. Cloth. Price, \$4.50. Pp. 178, with 119 Illustrations. Springfield, Ill., and Baltimore: Charles C. Thomas, Publisher, 1942.

This book was written to serve "as a working manual and as a ready reference" on the subject of roentgenography in obstetrics. It is based on the author's extensive experiences in this field. The chapters are devoted to a general discussion of the use of x-rays in pregnancy, positioning of the patient and technic of x-ray exposures, x-ray pelvimetry and cephalometry computations, the pelvic shape and its measurements, the fetus and pelvis, x-ray visualization of the soft tissues in pregnancy and case reports. Since the author was a pioneer in the x-ray visualization of the soft tissues in pregnancy, it is only natural that the longest and best chapter in the book is the one which deals with this subject. He also describes his own method of x-ray pelvimetry and cephalometry. There are one hundred and nineteen illustrations in the book, but many are not clear and a good number have been touched up, which spoils their value. Seventeen illustrations are devoted to placenta previa. The author has drawn a few illustrations which are distinctly amateurish. There is considerable waste space in the book, particularly on the pages opposite certain roentgenograms where the entire page is blank except for a few words in the center. In spite of these shortcomings the book should prove of great value to every one interested in roentgenography as it pertains to obstetrics. It is well written, and the publishers have done their part admirably.

Technique of Gastric Operations. By Rodney Maingot, F.R.C.S., Senior Surgeon to the Southend General Hospital and to the Royal Waterloo Hospital, London. Cloth. Price, \$4.50. Pp. 240, with 55 illustrations. New York & London: Oxford University Press, 1941.

This is a brief but in many ways excellent treatise on gastric surgery. The author states that he intends mainly to outline surgical technic, which he does quite well. A few more illustrations would probably be helpful in permitting the reader to follow more easily the complicated steps associated with the accurate performance of such operations as the Haberer modification of the first method of Billroth. Maingot finds it difficult to separate completely technical aspects from clinical findings and results. This is, perhaps, the only but none the less serious drawback to a book of this nature. The problems of gastric surgery are so complex and so intricately related to clinical experience that the proper choice and application of the many procedures available are indeed difficult: so much so that only surgeons of great experience are able to cope successfully with them. The occasional operator in the field of gastric surgery cannot hope to produce results equal to the master in the field. The problem of late results in gastric surgery, whether for benign or for malignant lesions, is almost as pressing as the immediate postoperative recovery. A book of this nature, necessarily brief, will only mildly attract the experienced and not sufficiently educate the inexperienced. Maingot's vast knowledge in this field, which is self evident, tends to overcome this objection in part. Technics described include the Rammstedt operation and its modifications, popular variations of the first and second Billroth types of resection, gastroenterostomy, gastrostomy and certain other operations involving the stomach and adjacent structures. Illustrations are clear and simple, and the descriptive text is concise and logical. The author has undertaken a difficult task and has crammed considerable of a perplexing subject into the brief confines of this book.

Clinical Hematology. By Maxwell M. Wintrobe, M.D., Ph.D., Associate in Medicine, Johns Hopkins University, Baltimore. Cloth. Price, \$10. Pp. 792, with 174 illustrations. Philadelphia: Lea & Febiger, 1942.

The author of this volume is well known in hematology. The subjects of the eighteen chapters are origin and development of the cells of the blood in the embryo, infant and adult; the erythrocyte; the leukocytes; blood platelets; the blood as a whole; the principles and technic of blood examination; general considerations and treatment of anemia; pernicious anemia and related macrocytic anemias; normocytic anemias; hemolytic anemias; hypochromic microcytic (iron deficiency) anemia; anemia in infancy and childhood; polycythemia; the purpuras; hemophilia and other hemorrhagic disorders: leukemia: tumors and tumor-like conditions involving the blood forming organs; granulocytopenia and infectious mononucleosis. Each chapter is well written, is illustrated where indicated and contains a complete bibliography. It is difficult to choose one chapter which is far superior to the others, but most readers will probably give special attention to the sections on the purpuras, hemophilia, leukemia and granulocytopenia. These are current and popular topics because of our ever expanding knowledge of the effect of commonly used medicaments on the blood cells. Of particular value to laboratory workers will be an appendix which tabulates the blood counts in twenty-three species of mammals and presents a bibliography on comparative hematology. This book is a valuable addition to any library.

La educación y el cuidado de los excepcionales. Sintesis de la labor que se realiza en los Estados Unidos en beneficio de los niños y adultos que se apartan de lo normal. Por Merle E. Frampton y Camilla Morgab. Publicaciones de la Unión panamericana. Educación, números 113-114. Paper. Pp. 38. Washington, D. C., 1941.

This pamphlet constitutes a synthesis of the work which is carried on in the United States in benefit of children and adults who are "exceptional," especially the handicapped. It contains information on the purposes and activities of the most prominent national organizations of the United States which are entirely devoted to work for the welfare and especially for the education of the different groups of the handicapped. It gives the names, local addresses and descriptions of the work carried on by the various national organizations for the education of the blind, the deaf, the crippled, those with speech disorders, heart diseases, cancer and tuberculosis, as well as those who offer problems of social and mental hygiene, juvenile delinquency and the "exceptionals" in general, which includes subnormal and supernormal. At the end of each chapter, in which the work of a given association is described, there is also a section of selected bibliography of American authors for each of the different groups.

Prepayment Plans for Medical Care. By Franz Goldmann, M.D., Associate Clinical Professor of Public Health, Yale University School of Medicine. Part I: Underlying Principles. Part II: A Comparative Study of Services and Costs of Five Plans. Joint Committee of the Twentieth Century Fund and the Good Will Fund; and Medical Administration Service, Inc. Paper. Price, 25 cents. Pp. 60. Boston: Edward A. Filene Good Will Fund, [n. d.].

Five plans that are only partially identified are described. It is assumed that "group practice of medicine" insures a body of qualified specialists using all available methods of diagnosis and treatment, while it is implied that plans involving the free choice of a physician will deliver care by a general practitioner who will be isolated from specialists, laboratories and hospitals. Description of the various plans is somewhat sketchy, giving the principal factors in easily comparable form. Considerable attention is given to costs without the author's recognizing that actuarial facts concerning most of the plans are still indefinite.

The 1941 Year Book of Pathology and Immunology. Pathology. Edited by Howard T. Karsner, M.D., Professor of Pathology, Bircetor of the Institute of Pathology, Western Reserve University, Clereland. Immunology. Edited by Sanford B. Hooker, A.M., M.D., Professor of Immunology, Boston University School of Medicine, Boston. Cloth. Price, 31, Pp. 623, with 136 illustrations. Chicago: Year Book Publishers, Inc., 1941.

The 1941 Year Book of Pathology and Immunology follows the plan of previous volumes in including the most important abstracts in the fields concerned with, however, a great number of editorial comments based on the editors' experience. Attention is called specifically to new work on shock, arteriosclerosis, blood transfusion and gramicidin.

# Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

### ABORTING A COLD

To the Editor:—What is the therapy for acute coryza? What is the surest way of aborting a cold at the earliest onset of symptoms?

M.D., Illinois.

-Since acute coryza is recognized as a nonspecific self-limited disease for which there is no specific remedy, it is the consensus that it should be treated in the most conservative The prime considerations are relief from pain, commanner. plete physical and mental rest, plenty of fluids and a mild diet. The patient should be in bed in a room whose humidity is at least 45 to 60 degrees. A steam kettle or a vaporizer should be kept going for this purpose. It is immaterial whether the vapor is impregnated with compound tincture of benzoin, oil of eucalyptus or any other aromatic substance, since the medication of the vapor adds nothing to the effectiveness of the moisture. Opiates, particularly Dover's powder (powder of ipecac and opium) are useful in reducing tension and relieving pain; they are preferable to the depressing coal tar products. A mild laxative is indicated only if there is evidence of intestinal stasis. Purging is contraindicated. If the nasal passages are blocked, relief may be obtained by the use of a 1 per cent solution of ephedrine in isotonic solution of sodium chloride instilled in the Parkinson or the Proetz position. The patient should be kept warm and protected from drafts. The room may be aired at intervals, but the windows should be kept closed in the interim.

The treatment described is the most effective way of aborting incipient coryza because it tends to overcome the vasomotor shock which initiates the usual cold.

### COMMON COLDS AND ULTRAVIOLET RAYS

To the Editor:—A patient has called my attention to the article entitled "Conquering the Common Cold and Other Air Borne Infections" which appeared in the New Republic, Dec. 15, 1941. I should like your opinion as to the value of the new ultraviolet ray lamp mentioned in this article, with particular emphasis on its use in combating the germ of the common cold.

Ben H. Hollis, M.D., Louisville, Ky.

Answer.—William Firth Wells and Mildred Weeks Wells (Am. J. Pub. Health 28:343 [March] 1938) began work with the installation of ultraviolet ray lamps set up under competent and rigid medical control in order to determine their value in controlling the sanitary quality of the air, with the hope of reducing respiratory disease.

Studies are being conducted at the Henry Phipps Institute in Philadelphia and at the Cradle Society, Evanston, III. (The Journal, April 11, 1942, p. 1271), which it is hoped will aid in determining the usefulness of ultraviolet rays in sterilizing the air.

Since the virus presumed to be responsible for colds has not been isolated or recognized, definite evidence of the effect of ultraviolet rays in combating colds is not available.

The evidence thus far presented seems to indicate that ultraviolet ray barriers set up between the cribs of infants in nurseries may help prevent the transmission of respiratory infections from one baby to another. Whether the installation of ultraviolet ray lamps in crowded rooms or in the sickroom will aid in preventing the transmission of colds has not been determined.

### LIVER THERAPY OF MUCOUS COLITIS

To the Editor:—I have heard that there is a new method of treating mucous colitis by parenteral injection of liver. I would appreciate any information you can give me on the subject.

M.D., New Jersey.

Answer.—There is no evidence at present that mucous colitis can be treated by parenteral injections of liver. Parenteral injections of liver have been used in cases of idiopathic ulcerative colitis with variable results. The only beneficial effect one could ascribe in cases of mucous colitis to the parenteral injection of liver would be to the possibility of the patient's having an added amount of vitamin B complex, which is contained in any good extract, particularly the crude type.

### CHRONIC ACTIVE GLOMERULONEPHRITIS

To the Editor:—A man aged 24 has chronic interstitial nephritis (with symptoms of hypertension, edema, albuminuria, casts in the urine and anemia) and may be "headed for" uremia. What is the latest treatment for this condition?

Louis L. Dolinsky, M.D., Woodside, N.Y.

Answer.—Judging from the age of the patient and the symptoms, it may be assumed that the diagnosis of chronic interstitial nephritis signifies chronic active glomerulonephritis rather than the arteriolosclerotic renal disease, or nephrosclerosis, secondary to essential hypertension. The association of edema and hypertension in a young person with nephritis constitutes the "mixed" type in which the edema is attributable to proteinuria and hypoproteinemia. If the nephritis has lasted long enough to produce cardiac insufficiency, by way of hypertension, the edema could be cardiac rather than renal. Treatment, of course, would vary correspondingly.

The management of a patient with chronic glomerulonephritis resolves into general and symptomatic measures. The general treatment includes giving an adequate diet for the maintenance of normal nutrition, taking precautions against exposure to infections of the respiratory tract, institution of bed rest even during minor colds and careful periodic examinations including tests of renal function and study of the sediment of concentrated urine. Foci of infection should be treated on the basis of their local importance rather than of their possible relation to the chronic renal process; otherwise the results will be disappointing if not actually harmful. The decision to eradicate a focus of infection is more logical when it can be ascertained that a flare-up of the nephritis definitely followed an acute localized infection.

The symptomatic treatment refers to the control of edema, anemia, hypertension and its sequelae. The foundation of the treatment of renal edema is a low salt intake. If this can be achieved, restriction of fluids becomes unnecessary. Bed rest is essential whenever there is more than slight edema. The diet should be normal except for the salt content and should contain 75 to 100 Gm. of protein, at least half of animal origin, including meat. Reduction of dietary protein is indicated only when the patient has severe renal insufficiency and is unable to eat. A blood urea or nonprotein nitrogen two or even three times normal is not incompatible with a good appetite and is not an indication for restriction of protein, especially when considerable proteinuria continues to act as a drain on body protein if dietary protein is curtailed, adequate calories must be supplied as carbohydrate and fat in order to prevent loss of body tissue.

Of the many diuretics available, the acid-forming salts and the organic mercurials give the best results in the treatment of chronic renal edema. Potassium salts in full doses may induce excellent diuresis in patients who can tolerate them. The ordinary purine drugs are generally disappointing in renal edema. Acacia, as given intravenously, is not to be recommended for use in general practice. Before any powerful diuretic drug is employed it is essential to determine the level of renal function. because diuresis depends on the renal excretion of the drug and toxic effects are likely to follow retention of the drug. Mercury should not be given if the urea clearance is less than one third of normal or the maximum urinary specific gravity on an eighteen hour concentration test is less than 1.018, corrected for protein in the urine. If there is any question of cardiac insufficiency, digitalization should be carried out just as it would be in nonrenal edema, since low renal function is not a contraindication to the use of digitalis. The degree of diuresis will depend on the amount of edema, the level of renal function, the plasma albumin concentration and the efficiency of salt restriction. Minor residual edema of the legs may be controlled with elastic bandages.

Anemia in nephritis may be nutritional in origin or part of the toxic effect of renal insufficiency. In the former case, a good diet and a supplement of iron will usually improve the blood; in the latter, one may have to resort to repeated small blood transfusions whenever the hemoglobin level falls below 50 to 60 per cent. The slightest incompatibility of bloods may produce dangerous renal effects in preuremic patients.

Hypertension in chronic glomerulonephritis does not require treatment nor is it particularly responsive to the measures ordinarily employed in essential hypertension. However, the complications of hypertension in the form of encephalopathy and cardiac insufficiency can be treated in nephritic patients as in others. Low renal function renders the use of hypertonic solutions of sucrose, intravenously, questionable because of delayed exerction and noneffectiveness. Sedatives like bromides and barbital which depend on urinary excretion should be given with caution, if at all.

# POLYNEURITIS IN A WATCHMAKER

To the Editor:—A man aged 28, who had been working in a watch factory for the past several years, suddenly became ill, complaining of severe pain in one arm and then the other, and later of pain in the abdomen pain in one arm and then the other, and later of pain in the abdomen and legs. His temperature varied between 100 and 104 F. Later he had a bilateral wrist drop and wasting of the upper extremity. He was admitted to the hospital, where he remained for eight weeks before he died. Several diagnoses were made, such as polyneuritis, poliomyelitis and meningitis. A postmortem was performed and a diagnosis of infectious polyneuritis was made. While working in the watch factory the man came in contact with a solution of dilute cyanide, cream of tartar, alcohol and acetic acid, nickel chloride and nickel sulfate, capper cyanide, gold cyanide, silver chloride and silver cyanide. Is it not nassible that the cyanide, silver chloride and nickel suitate, copper cyanide, gola cyanide, silver chloride and silver cyanide. Is it not possible that the patient acquired polyneuritis as a result of his occupation, which through lowered resistance on account of his long illness became an infectious type and hastened his death? Are there such cases on record? Kindly send me reference material or advise where I can obtain this material. William A. Lustusky, M.D., Mount Carmel, Pa.

Answer.-The preeminent but still minor occupational diseases of the watchmaker center about a variety of dyskinesias or cramps or trade neuroses akin to the better known "writers' These result from repetitive movements in manipulating small parts, usually metal, in watch parts production and To some extent the damage may be functional, but the possibility that a neuritis exists is recognized. While work disability may arise, such disability is limited to special operations and by no means is general. So localized are such injuries that it is only fabulous to conceive that such affairs might attain the severity described in this query. Of greater significance is the implication found in the query that this former workman was not a watchmaker but a plater and thus not subject to the dyskinesias mentioned. The question then becomes Will the plating materials mentioned lead to a fatal polyneuritis? The answer must be made in the negative, and no such occurrences are found in authentic literature. Gold, silver, nickel and copper are not recognized as likely sources of systemic diseases after industrial exposures. Cyanides are highly toxic but do not induce the manifestations of the acute episode described. Cyanide gases constitute internal asphyxiants but are without selective action for peripheral nerve tissues. The well elevated temperature at onset militates in some measure against any chemical action. The concept that the wear and tear, of work lowered resistance might apply equally to large numbers of occupations and is scarely tenable.

### PITYRIASIS RUBRA PILARIS

To the Editor:-In a girl aged 13 there developed five months ago hard dry popules on the dorsal and ventral surfaces of the feet and hands. a few weeks the eruption became universal, with some sparing within a tew weeks the eruption became universal, with some sparing of the flexor surfaces of her arms. In most areas the popules have become confluent; the entire back and face are one dry red plaque partially covered with branny scales. The scalp presents a picture of moderately severe sebortheic dermatitis, "dandruff," with much scaling and some loss of hair. The nails are striated and the palms and soles are thickened. The patient is somewhat underweight, has not reached puberty but otherwise is in fair health, except that a few days ago mild bronchopneumonia developed. A dermatologist prescribed large doses of vitamin A and developed. A dermatologist prescribed large doses or vitamin A and various external methods of treatment, including tar baths, frequent oil rubs and sulfur ointment. There has been a moderate amount of itching present since inception of the condition. This is apparently a case of pityriasis rubra pilaris. Please answer the following questions: Could have the prescribed of a described due to a vitamin A delicitore. phyriusis runa pitaris. Freque answer the following questions: Could this be a manifestation of a dermatosis due to a vitamin A deficiency, assuming that the girl comes from a well-to-do family and has had sufficient amounts of vegetables and dairy products in her daily diet? What is the cause of pityriasis rubra pilaris? Could there be a hormonal dysfunction, that is of the thyroid? What would you advise as to internal Eugene J. Boros, M.D., Bethany, III. and external therapy?

Answer.-This is undoubtedly a case of pityriasis rubra pilaris. In recent years a disease of the skin has been reported in which follicular hyperkeratosis, the same pathologic appearance seen in pityriasis rubra pilaris, is present to a less degree. Numerous writers have described a condition in undernourished patients in the tropics and in the Orient in which a rough skin with follicular hyperkeratosis (phrynoderma, meaning toadskin) was associated with well established signs of vitamin A deficiency, such as xerophthalmia, keratomalacia and night blindness. More recently a similar disorder has been described as affecting white persons, children and adults, and under appropriate therapy the skin has been restored to normal. This condition usually affected persons of the underprivileged class or those who for some reason had undergone a rigid restriction of the diet. It seems well established on the basis of these reports and experiments that under certain conditions a deficiency of vitamin A provokes a characteristic response in the skin.

Microscopic studies made in cases of phrynoderma show a striking similarity in many respects to the microscopic picture

of pityriasis rubra pilaris. In 3 cases of pityriasis rubra pilaris reported by Brunsting and Sheard (Dark Adaptation in Pityriasis Rubra Pilaris, Arch. Dermat. & Syph. 43:42 [Jan.] 1941) the abnormally high levels of dark adaptation present were corrected promptly by the administration of large amounts of vitamin A. The response of the skin, however, was considerably delayed. Failure in response or a delayed response of the skin to a therapeutic test by means of the administration of large amounts of carotene or of vitamin A is only of relative value in determining the ultimate importance of a disturbance of vitamin metabolism in this peculiar disease entity.

In an article by Peck, Chargin and Sabotka (Keratosis Follicularis, a Vitamin A Deficiency Discase, ibid. 43:223 [Feb.] 1941) the authors state that patients with keratosis follicularis when given a normal diet, which apparently contains an adequate amount of vitamin A, are unable to maintain a normal vitamin A level in the blood because of either inability to absorb the required quantity of vitamin A from the gastrointestinal tract or inability to convert the provitamin A, carotene, into vitamin A. This will explain the reason for giving vitamin A in pityriasis rubra pilaris. The reference may explain why a girl on a normal diet should show a vitamin A deficiency.

The cause of the disease is unknown. It is a chronic benignprocess in the skin, runs a varied course and may show a familial trend. There is no evidence to show that there is a hormonal dysfunction of the thyroid. The treatment outlined by the dermatologist is excellent and should be continued.

### BLEEDING FROM MUCOUS MEMBRANES CAUSED BY HEPARIN

To the Editor:--Have cases been reported in which heparin has caused o the Editor:—Have cases been reported in which heparin has caused bleeding from the mucous membranes, namely the gums and the bowel? The following case was observed in our hospital: A woman aged 74 with hypertension and an apparently sound heart was operated on for partial intestinal obstruction and an enlarged, thickened gallbladder with a solitary stone. The stone was removed, and drainage of the gollbladder was instituted; distention, nausea, vomiting and constipution followed. About the fifth day, after the use of enemas and the Wangensteen suction apparatus she was doing well, when thrombosis of the popliteal artery occurred. It was decided not to intervene. After the second day one ampule of heparin was administered in 500 cc. of dextrose solution. The clotting time was eight minutes after administration. The next day, a second ampule was given and the clotting time was five and next day, a second ampule was given and the clotting time was five and one-half minutes. Twenty-four hours later two ampules were administered in 500 cc. of dextrose solution and the clotting time was over ten in 500 cc. of dextrose solution and the clotting time was over ten minutes. This was followed by bleeding from the gums and the bowd which lasted over twelve hours. The heparin seemingly had no effect on which idition of the leg, which gradually became more cyanotic, and the circulation became more impaired. The patient lived four or five days more before death, the heparin apparently having no effect for better or worse. I have read a report by an author who has given heparin until the clotting time was prolonged for nearly an hour with no bleed-M.D., New Jersey.

Answer .- Only a tentative answer can be given to this inquiry, because the dose of heparin is unknown and it is not known how soon after the administration of heparin the coagulation time was determined. Also the method used has not been stated. Ampules of different sizes and concentrations are on the market, but it may be assumed that a 10 cc. ampule, containing 100 mg. of heparin, was used. This dose is usually insufficient to maintain a coagulation time of ten to fifteen minutes during the entire day and night. However, when given suddenly, within a few minutes to one-half hour, it may raise the coagulation time to a dangerous level.

The reaction of patients to heparin differs a great deal. Some patients are much more sensitive to it than others. If the patient has a damaged liver, jaundice or a hemorrhagic tendency, because of a vitamin deficiency, bleeding will occur sooner. A single determination of the coagulation time may not give a true idea of the action of heparin, as it may be made before or after the peak of the coagulation curve has been reached. The only way to administer heparin safely is to determine the coagulation time at short intervals, probably every half hour, until the tolerance of the patient is known. There have been a number of reported and unreported cases of hemorrhage following the use of heparin both in the postoperative field and in unsuspected defects in the mucous membrane, such as a duodenal ulcer or the lesion of ulcerative colitis. The drug must be administered with a great deal of caution and with exact indications. Thrombosis of the poplitcal artery seems to constitute a proper indication, except that one should not expect a restoration of circulation from its use, as heparin will not dissolve existing clots but will prevent further clotting proximal or distal to the existing thrombus.

# JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JANUARY-APRIL 1942

Titles have been listed or Abstracts made of important articles in the following journals in the Current Literature Department of The Journal during the past four months. Any of the journals, except those starred, will be lent by The Journal to subscribers in continental United States and Canada and to members of the American Medical Association for a period not exceeding three days. Three journals may be borrowed at a time. No journals are available prior to 1932. Requests for periodicals should be addressed to the Library of the American Medical Association and should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Thus most of these journals are accessible to the general practitioner.

Cancer Research. Baltimore. Chinese Medical Journal. Peking. Connecticut State Medical Journal. Hartford. Acta chirurgica Scandinavica. Stockholm. Acta medica Scandinavica. Stockholm. Acta obstetricia et gynecologica Scandinavica. Stockholm. Acta radiologica. Stockholm. Acta tuberculosea Scandinavica. Copenhagen. Delaware State Medical Journal. Wilmington. Dermatologica. Basel.
Deutsche medizinische Wochenschrift. Leipzig. American Heart Journal. St. Louis. Deutsche Zeitschrift für Chirurgle. Berlin.
Deutsches Archiv für klinische Medizin. Berlin. American Journal of Clinical Pathology. Baltimore.

American Journal of Digestive Diseases. Fort Wayne, Ind.

*American Journal of Diseases of Children. A. M. A., Chicago. Día médico. Buenos Aires. Diseases of the Eye, Ear, Nose and Throat. Chicago. American Journal of Hygiene. Baltimore.

American Journal of the Medical Sciences. Philadelphia. Edinburgh Medical Journal. American Journal of Obstetrics and Gynecology. St. Louis. Endocrinology. Springfield, Ill. American Journal of Ophthalmology, Cincinnati,
American Journal of Ophthalmology, Cincinnati,
American Journal of Orthodontics and Oral Surgery,
American Journal of Orthopsychiatry, Menasha, Wis.
American Journal of Pathology, Ann Arbor, Mich.
American Journal of Physiology, Baltimore,
American Journal of Psychiatry, New York,
American Journal of Psychiatry, New York, Folia pharmacologica japonica. Kyoto. Gann. Tokyo. Gastroenterologia. Basel. Geneeskundig tijdschrift voor Nederlandsch-Indië. Batavia. Guy's Hospital Reports. London. Hawaii Medical Journal. Honolulu. Helvetica medica acta. Basel. American Journal of Psychiatry. New York.
American Journal of Public Health. New York.
American Journal of Roenigenol. and Radium Therapy. Springfield, Ill.
American Journal of Syphilis, Gonor. and Venereal Diseases. St. Louis.
American Journal of Tropical Medicine. Baltimore.
American Review of Tuberculosis. New York.
Anais brasileios de ginecologia. Rio de Janeiro.
Anais da Faculdade de medicina da Universidade de S. Paulo. São Paulo.
Anales de la Cátedra de natalogía y clinica de la tuberculosis. Ruenos Heretica inclusion and a Hasel.
Hospital. Rio de Janetro.
Illinois Medical Journal. Chicago.
Irish Journal of Medical Science. Dublin. Jahresbericht des Kurashiki-Zentralhospitals. Kurashiki. Journal of Allergy. St. Louis. Journal of the Arkansas Medical Society. Fort Smith. Journal of Bone and Joint Surgery. For Sm Journal of Bone and Joint Surgery. Boston. Journal of Clinical Endocrinology. Springfield, Ill. Journal of Clinical Investigation. New York. Journal of Endocrinology. London. Journal of Experimental Medicine. New York. Anales de la Cátedra de patología y clínica de la tuberculosis. Buenos Aires. Afres.

Anales de la Sociedad mexicana de oftalmología y oto-rinolaringología.

México, D. F.

Anesthesiology. New York.

Annales pædiatrici. Basel.

Annals of Internal Medicine. Lancaster, Pa.

Annals of Otology, Rhinology and Laryngology. St. Louis.

Annals of Surgery. Philadelphia.

Archiv für kilnische Chirurgie. Berlin.

Archiv für Kreislaufforschung. Dresden. Journal of the Florida Medical Association. Jacksonville, Journal of Hygiene. London.

Journal of Immunology. Baltimore.

Journal of the Indiana State Medical Association. Indianapolis. Journal of Industrial Hygiene and Toxicology. Baltimore. Journal of Infectious Diseases. Chicago. Journal of Investigative Dermatology. Baltimore. Journal of the Iowa State Medical Society. Des Moines. *Archives of Dermatology and Syphilology. A. M. A., Chicago. Archives of Disease in Childhood. London. Archives de l'Institut Pasteur de Tunis. Journal of the Kansas Medical Society. Topeka.
Journal of Laboratory and Clinical Medicine. St. Louis.
Journal-Lancet. Minneapolis. *Archives of Internal Medicine. A. M. A., Chicago. *Archives of Internal Medicine, A. M. A., Chicago.
Archives internationales de pharmacodynamie et de thérapie. Ghent.
*Archives of Neurology and Psychiatry. A. M. A., Chicago.
*Archives of Ophthalmology. A. M. A., Chicago.
*Archives of Otolaryngology. A. M. A., Chicago.
*Archives of Pathology. A. M. A., Chicago.
Archives of Physical Therapy. Chicago.
*Archives of Surgery. A. M. A., Chicago.
*Archives of Surgery. A. M. A., Chicago.
Archives argentinos de enfermedades del aparato respiratorio y tuberculovis. Buenos Aires.
Archivos argentinos de pediatría. Buenos Aires.
Archivos de pediatría del Unymay. Montavideo. Journal of Laryngology and Otology, London, Journal of the Maine Medical Association. Portland. Journal of the Medical Association of the State of Alabama. Montgomery. Journal of the Medical Association of Georgia. Atlanta. Journal of the Medical Society of New Jersey. Trenton. Journal of Mental Science. London.
Journal of the Michigan State Medical Society. Muskegon.
Journal of the Missouri State Medical Association. St. Louis.
Journal of the National Cancer Institute. Washington, D. C.
Journal of Nervous and Mental Disease. New York. Archivos de pediatría del Uruguay. Montevideo. Journal of Neurophysiology Springfield, III. Journal of Nutrition. Philadelphia. Journal of Obstetrics and Gynaecology of British Empire. Manchester. Arquivos brasileiros de oftalmologia. São Paulo. Arquivos do Servico de assistência a psicopatas do estado de São Paulo. Boletín de los hospitales. Caracas, Venezuela. Boletín de la Liga contra el cáncer. Havana. Boletín de la Sociedad de obstetricia y ginecología de Buenos Aires. Bollettino della Societa italiana di microbiología. Milan. Journal of the Oklahoma State Medical Association Oklahoma City.

Journal of Pathology and Bacteriology. Edinburgh. Journal of Pediatries, St. Louis,

Journal of Pharmacology and Experimental Therapeutics, Baltimore,

Journal of the Philippine Medical Association, Manila. Brain. London. Brail London.
Brail-medico, Rio de Janeiro.
British Heart Journal. London.
British Journal of Dermatology and Syphilis. London.
British Journal of Experimental Pathology. London.
British Journal of Ophthalmology. London. Journal of Libysiology. Cambridge

Journal of the Royal Army Medical Corps. London. Journal of the South Carolina Medical Association. Plorence. Journal of the Tennessee State Medical Association. Nashville. Journal of Thoracle Surgery, St. Louis,
Journal of Urology, Baltimore,
Kentucky Medical Journal, Bowling Green,
Kitasato Archives of Experimental Medicine, Tokyo,
Lancet, London, British Journal of Radiology. London. British Journal of Surgery. Bristol. British Journal of Tuberculosis. London. British Journal of Urology. London. British Medical Journal. London. Lancet. London.

Laryngoscope. St. Louis.

Laral médical. Quebec.

Medical Annals of the District of Columbia. Washington.

Medical Journal of Australia. Sydney. Bulletin of the Johns Hopkins Hospital. Baltimore. Bulletin of the Naval Medical Association. Tokyo. Bulletin of the New York Academy of Medicine. New York. California and Western Medicine. San Francisco.

Medicina. México, D. F. Medicina. México, D. F. Medicine. Baltimore. Military Surgeon. Washington, D. C. Minnesota Medicine. St. Paul.

Canadian Medical Association Journal. Montreal. Canadian Public Health Journal. Toronto.

^{*}Cannot be lent.

Mitteilungen aus der medizinischen Akademie zu Kioto. Kroto. Monatsschrift fur Psychiatrie und Neurologie. Basel. Nebraska State Medical Journal. Lincoln. New England Journal of Medicine. Boston. New Orleans Medical and Surgical Journal. New York State Journal of Medicine. New York. Nordisk medicin. Stockholm North Carolina Medical Journal. Winston-Salem. Northwest Medicine, Seattle Ohio State Medical Journal. Columbus, Okayama-Igakkai-Zasshi Okayama, Ophthalmologica. Basel. Pasteur, Revista mensual de medicina Mévico, D F. Pediatria prática São Paulo Penns; Ivania Medical Journal. Harrisburg. Physiological Reviews. Baltimore. Practitioner. London Proceedings of the Royal Society of Medicine
Proc of the Staff Meet of the Mayo Clinic
Psychiatric Quarterly. Utica, N Y.
Public Health Reports. Washington, D C. Quarterly Journal of Medicine. Oxford. Quarterly Journal of Studies on Alcohol. New Haven, Conn Radiology Syracuse, N Y Review of Gastroenterology. New York Revista de la Asociación médica argentina. Buenos Aires Revista brasileira de biologia Rio de Janeiro Revista chilena de pediatria Santiago Revista chilena de pediatria San Revista de cirurgia de São Paulo Revista clínica española. Madrid Revista clinica de S Paulo São Paulo
Revista cubana de cardiologia. Havana
Revista de la Facultad de medicina Bogotá
Revista del Instituto de salubridad y enfermedades tropicales México,
D F

Revista médica de Chile. Santiago Revista médica de Córdoba. Córdoba. Revista médica peruana. Lima.
Revista médica de Rosarlo Rosario de Santa Fe.
Revista médico-social de santada y beneficencia municipal Havana
Revista de ortopedia y traumatología. Buenos Aires.
Rhode Island Medical Journal. Providence. Rivista di malariologia. Rome. Rivista di patologia nervosa e mentale. Florence. Rocky Mountain Medical Journal. Denver. Schweizerische medizinische Wochenschrift. Basel. Schweizerische Zeitschrift für Pathologie und Bakteriologie. Basel Sei-l-Kai Medical Journal. Tokyo. Semana médica española Madrid Southern Medical Journal. Birmingham, Als. Southern Surgeon. Atlanta, Ga. Southwestern Medicine El Paso, Texas. Surgery. St Louis. Surgery, Gynecology and Obstetrics. Chicago. Taiwan Igakkai Zassi, Taihoku, Formosa, Texas State Journal of Medicine. Fort Worth. Tubercle London. Ugeskrift for læger. Copenhagen Union médicale du Canada Mon Montreal Virginia Medical Monthly. Richmond. *War Medicine A M A, Chicago Western Journal of Surgery, Obstetrics and Gynecology. Portland, Ore West Virginia Medical Journal. Charleston, Wiener klinische Wochenschrift. Vienna. Wisconsin Medical Journal Madison. Yale Journal of Biology and Medicine. New Haven. Zeitschrift fur Orthopadie. Stuttgart. Zentralblatt fur Chirurgie Leipzig Zentralblatt fur Gynahologie. Leipzig.

# at the Medical & Dentoi

# SUBJECT INDEX

This is an index to all the reading matter in The Journal. In the Current Medical Literature Department only the 'articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "OS," Organization Section; "SS," Student Section; "ab," abstracts; the star (*)

indicates an original article in The Journal.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." State board examinations are entered under the general heading State Board Reports, and not under the names of the individual states. Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

For author index see page 1576.

A.M. Vaginal Jelly; A. M. Wonder Salve: Nu-Mode products, 163—BI
 A.T. 10: See Dihydrotachysterol (cross refer-

A.T. 10: See Dihydrotachysterol (cross reference)
ABBOTT Laboratories, alcoholic elixirs of thiamine hydrochloride, 979
ABBOTT-MILLER Tube: See Intestines surgery ABBOMEN: See also Gastrointestinal Tract; Pelvis; Peritoneum
Adhesions: See Adhesions circumferential measurements of, [Behnke & others] *495; [Welham & Behnke] *498 diagnosis, peritoneoscopy, [Hamilton] 668—ab sulfanilamide implanted in, [Mueller & Thompson] *189; [Jackson & Coller] *194; [Taylor] *595 sulfapyridine implanted in, [Gottesman & Goldberg] *297 sulfathiazole as adjunct to surgery in, [Anderson] *892 sulfonamide compounds in closed wounds, misuse of, [Taylor] *595; [Ferguson] 1514—C surgery, glove powder causes miliary granulowers lealant, [Pares 1 100]

surgery, glove powder causes miliary granulomatous lesions, [Byron] 409—ab surgery, lleus after, [Bisgard & others] *449 surgery, pitressin used before and after, [Wylle] 405—ab

[Wylle] 403—ab trauma (nonpenetrating), intestinal-mesenteric rupture from, [Poer & Woliver] *11 ABNORMALITIES: See also Appendix; Eyes; Fingers; Heart; etc. congenital malformations, surgical correction,

congenital, nutritional, dried pig liver prevents, [Warkany] 1002—ab
ABORTION: See also Medicolegal Abstracts at end of letter M

end of letter M
birth control clinic attendance effect on pregnancy wastage and, [Stix] *283
criminal, Fred Wells convicted for, 829
criminal, Millie Myer sentenced, 1150
criminal, Valentine St. John, fugitive located,

909

effect of antepartum diet, [Ebbs] 255—ab ergot poisoning or worry, 857 threatened and inevitable; pregnancy be con-tinued? 681 threatened, progesterone for, [Kotz] 172—ab LBSCESS: See also under region or organ affected ABSCESS:

affected
retropharyngeal, atlas-axis dislocation after,
[Martin] *8574
retropharyngeal, retrotonsillar and peritonsillar, in childhood, 4 signs; suifanilamide
for, [Deering & Brennemann] *1171
sacrolumbar, Salmonella schottmülleri isolated
from, [Ecker & others] *1296
subplirente, 243
ABSORBENT: See Carbon Dioxide
ABSORPTION: See Carbon Disulfide; Phosphorus; Sulfaguandline; etc.
ACACIA, intravenously, effect on wound healing,
[Rhoads & others] *21
pectin solution compared with, [Hartman]

[Rhoads & others] *21
pectin solution compared with, [Hartman]
1161—nb
ACADEMY: See also American Academy; New
York; Toledo
Academia Nacional de Medicina of Buenos
Aires, pediatric prize awarded, 659
of Medicine of Brooklyn, honors ex-presidents,
59

of Medicine of Brooklyn, honors ex-presidents, 59
of Medicine of Toronto, lectures for practitioners, 61
ACCIDENTS: See also Disability; First Ald;
Trauma; Wounds
crash helmets should be worn by motor cyclists to prevent head injuries, 313
Fourth of July injuries due to fireworks and explosives (5th annual summary) *46
holiday, U. S., 549
Industrial: See Industrial Accidents
ACETONE for disinfecting instruments, 94
ACETYL choline, intra-arterial injection, effect on myaathenia gravis, [Harvey] 1007—ab

ACHALASIA: See Duodenum ACHYLIA gastrica: See Stomach, achylia ACID, adenylic, effect on malnourished, [Vilter]

CHYLIA gastrica: See Stomach, achylia CID, adenylic, effect on malnourished, [Vilter] 1410—ab Amino Acids: See Amino Acids aminoacetic, falis to increase work capacity, [King] *594 aminoacetic, gelatin as source of, for post-influenzal neuritis, [Gotthofer] 568 para-aminobenzolc, vitamins for gray hair, 302—E; [Hrdlička] 918—C ascorbic, depletion, prevalence of, [Jolliffe & others] *949 ascorbic, in mercurial and bismuth stomatitis, [Marin] 1260—ab ascorbic, N. N. R., (tablets-Wyeth) 979; (tablets-SNIACO) 1217 bichloroacetic, for skin lesions, 856 burns, best neutralizing agent for, 935 Carbolic: See Phenol fatty, deficiency in food ration, France, 475 fatty, used in soap manufacture, [Lane & Blank] *809 gallic, to control hemorrhage after tonsillectory

gallic, to control hemorrhage after tonsillec-tomy, 182 hippuric, determination in urine after toluene

nippuric, determination in urine after foluene exposure, [von Octtingen & others] *583 l-methyl-4-phenyl-piperidine-4-carboxylic, injection for hiccup, [Jessen] 674—ab Nicotinic: See also Vitamins Binicotinic acid amide for pellagra, [Schroeder] 177

-ab

Mectanic; see also Mamins Binicotinic acid amide for pellagra, [Schroeder] 177—ab

'incotinic acid, diethylamide of, Nikethamide
—N. N. R., (description) 1052; (Breon, Endo, Lakeside, Upjohn) 1052; (Breon, Endo, Lakeside, Upjohn) 1052
nlcotinic acid, N. N. R., (Breon) 49
nlcotinic, deficiency, test for, [Perlzweig & others] *28
nlcotinic, nlacin and nlacin amide (Council report), 819; 823—E
nicotinic, plus hydration for alcoholic encephalopathia syndrome, [Joillife] 1248—ab nucleic, chromosome chemistry, 802—ab pantothenic, vitamins for gray hair, 302—E; [Hrdlička] 918—C
phosphatase relation to prostate cancer; 855, [Ajamil] 1166—ab
pyruvic, studies in Wernicke syndrome, [Wortis] 1407—ab
rosolic, in medium selective for Flexner's bacillus dysenteriae, [Wilson] 325—ab salicylic, price fixed by Office of Price Administration, 386
sulfanilic, for trachoma, [Cosgrove] 1412—ab tannic, to control hemorrhage after tonsiliectomy, 182
Uric: See Uric Acid
ACIDOSIS: See also Ketosis
caused by depletion of glycogen in liver, [Mirsky] *660
Diabetic: See Diabetes Mellitus
ACME Laboratory eye treatment "D-I-T," also
"Oroseptol," 317—BI
ACNE, machine oil, [Suga] 258—ab
vulgaris, roentgen treatment, [Miskjian] 671
—ab
ACRIFLAVINE: See Tularemia, treatment

ACRIFLAVINE : See Tularemia, treatment

ACRIFLAVINE: See Tularemia, treatment ACRODERMATITIS chronica alrophicans, cancer developing in, [Pack & Wuester] *879 ACRODYNIA: See Erythredema ADAMS-STOKES Disease: See Heart block ADAPTATION, Dark: See Eyes, accommodation ADDICTION: See Alcoholism ADDIS Count: See Urine ADDISON'S ANEMIA: See Anemia, Perniclous ADDISON'S DISEASE, complications, acute streptococcus infections, sulfadiazine and adrenal coriex extract for, [Thorn & Lewis] *214

renal function in, [Kepler] 1401—ab treatment, desoxycorticosterone acetate, im-planted subcutaneously, [Inadea] 1016—ab without melanoderma, [Arias Vallejo] 674

—ab
ADENINE sulfate treatment of possible acute
agranulocytosis, 338; (reply; where obtainable; reactions) [Reznikoff] 682
ADENITIS: See Lymphatic System; Sweat Glands

ADENOCARCINOMA, diagnosis, Aschheim-Zon-dek test, [Twombly & others] *106 occult, of prostate, incidence, [Baron] 253 —ab

occult, of prostate, incidence, [Baron] 253

—ab

ADENOIDS, tonsillectomy and adenoidectomy in allergic or hay fever patients, 420

ADENOMYOSIS: See Endometriosis ADHESIONS, abdominal, sulfanilamide prevents, [Jackson & Coller] *194

heparin for preventing, [Lehman] 560—ab

ADOLESCENCE: See also Menstruation, inception of; National Youth Administration athletics and youth; calories required; incidence of heart disease, France, 1155

Emergency Cooperating Committee for Children and Youth, 393

health program: Youth Work Defense Program report, 1153

Hitler youth, 1382
hyperthyroidism in, [Black] 254—ab testis undescended after, [Rea] 1007—ab

ADRENALIN: See Epinephrine

ADRENALIN: See also Addison's Disease cortex extract for acute hemolytic streptococcus infection, [Thorn & Lewis] *214

cortex extract for malignant diphtheria, [Behr] 413—ab

cortex extract, prevents heat disorders, [Böttner] 413—ab

cortex thormone (crystalline): See Corticosterone; Desoxycorticosterone

cortex steroids relation to shock, [Freed] 1403—ab

deficiency, asthenia and aching with gain in weight, 679

deficiency, asthenia and aching with gain in weight, 679 insufficiency, depot therapy [Thaddea] 1016

—an insufficiency without melanoderma, [Arias Vallejo] 674—ab medulla, tumor with paroxysmal hypertension, [Crane] 1010—ab

struma cystica hemorrhagica, [Schröder] 1418
-ab

[Crane] 1010—ab struma cystica hemorrhagica, [Schröder] 1418—ab tissue susceptible to histoplasmosis, [Henderson & others] *885

ADVERTISING: See also Medicolegal Abstracts at end of letter M brochures, (Council decision) 617

Cooperative Medical Advertising Bureau, report, 1465—08

Foodex, 1450

medical, law regulates, Rio de Janeiro, 1235

ADVISORY Board for Medical Specialities joint meeting with A.M.A. Council, 1149—08

AEROSINESITIS, [Campbell] 1330—ab

AEROSINESITIS, [Campbell] 1330—ab

AEROSOLS, to prevent air borne infection, [Buchbinder] *128; *129; 131—E

AGE, Adolescent: See Adolescence basal metabolism after 50 year interval, [Magnus-Levy] *1369

man power of nations at war, males aged 18-35, 461; [Rowntree & others] *1224; *1225; middle aged men, climacteric in vs. menopause in women, 458—1; 01d Age: See Old Age specific gravity in relation to, [Behnke & others] *497

AGGLUTINATION, effect of calcium in autohemagnlutination, [Parish] 449—ab

Raynaud's syndrome with spontaneous cold hemagnlutination, [Renlans] 489—ab

Tests: See Jaundlee, spirochetal

AGRANULOCYTOSIS, ACUTE, diagnosis; treatment with adenine sulfate and pentnucleotide, 338; (reply) [Rernikof] 682

malignant neutropenia after sulfaypridine, [Goldman] 559—ab

recovery after rigor during transfusion, [Cross] 1521—ab

AIR: See also Humidity: Oxygen

borne infection of revelratory tract, [Buchbinder] *718; 731—1; conditioning, A. M. A. Committee to Study, 1488—OS

conditioning to control cross infections in nursery, [Sauer & others] *1271

conditioning to control cross infections in nursery, [Sauer & others] *1271 conditioning unit (small) in operative surgery,

AIR-Continued

IR—Continued conditions and dryness of oral mucosa, {Winslow] 1325—ab detergent affect, [Lane & Biank] *807 disinfection, ultraviolet lamps for, (Council report) 298; 1468—08 disinfection with ultraviolet rays, chemical sprays, etc., [Buchbinder] *727; *728; 734—E.

sprays, etc., [Buchbinder] *727; *728; 734
—E

disinfection with ultraviolet rays to control common colds, 1525

disinfection with ultraviolet rays to control school epidemics, [Wells] 1326—ab

Injection: See Pneumoperitoneum; Pneumothoray, Artificial (cross reference)

Pressure. See Barometric Pressure; Calsson workers

samples, novel device for collecting, in inaccessible places, 573—ab

AIR FORCE See Medicine and the War, aviation, World War II

AIR PASSAGES: See Respiratory System

AIR RAIDS, American hospital built to withstand, 1311

blast injuries, 898—E; [King] 1413—ab

care of bables during, American Committee
on Maternal Welfare instructions, 985

deep red light better than blue for black outs,
541

dispatch of emergange consulties among

dispatch of emergency casualties among cuillans, St Louis, 1455 effects on children, [Burbury] 755—ab; 1508

dispatch of emergency casuames among chilians, St. Louis, 1455
effects on children, [Burbury] 755—ab; 1508
In Palestine, 912
kidney syndrome resulting from falling débris, [Maitland] 411—ab, 911, 1311
precautions and evacuation, obligation of medical students, England, 994
shelter foot, [Greene] 1257—ab
shelters, London's underground railway, 1237
shelters, sprays to control infection, England, [Buchbinder] *729
temporary lospitalization for civilians injured as result of enemy action, 983, 1374
wardens, teachers of, 1305
wounding mechanism of high velocity missies, [Black] 1416—ab
Wounds 'See also World War II
wounds, bacteriology, [Spooner] 88—ab
wounds, treatment, war wounds, [Gordon-Taylor] 1414—ab
AIRPLANES 'See Aviation
ALASKA, corneal opacities in children in, 338
ALBUMIN, "egg white injury," biotin concentrate cures, [Sydenstricker & others] *1199
in Urine. See Albuminuria
ALBUMINURIA, bismuth stomatitis and, [Peters] 1250—ab
concentration of total protein and of globulin
in Bright's disease, [Blackman] 485—ab
ALCOBAN, 163—BI
ALCOHOL, Addiets: See Alcoholism
as a detergent, [Lane & Blank] *808
Benzyl. See Benzyl Alcohol
beverages containing, new law on, France,
553
effect on dark adaptation, [Yudkin] 1521—ab
effect on vision, [Newman] 252—ab

beverages containing, new law on, France, 553
effect on dark adaptation, [Yudkin] 1521—ab effect on vision, [Newman] 252—ab effect on vision, [Newman] 252—ab effect on vitamin assimilation, 553
elixirs of thiamine hydrochloride not acceptable for N.N.R., 979
for dislinfecting instruments, 94
injection (paravertebral) for cardiac pain, [Perlow] 1253—ab is it a food? Sir Frederick Gowland Hopkins essay, 62
Propyl: See Propyl Alcohol
Research Council on Problems of, studies under way, 1152
ALCOHOLISM, delirium tremens, chemical studies in, [Cohn] 83—ab encephalopathia syndrome, hydration plus vitamin therapy for, [Joiliffe] 1248—ab legislation, France, 553
nostrum: Alcoban, 163—BI nostrum: Bartlet "Cures" for Liquor Habits, 164—BI palagra due to, monthly incidence. [Bean]

164-BI

nostrum: Bartiet Cures not Inquot Intens, 164—BI pellagra due to, monthly incidence, [Bean & others] *1178 personality traits in, without psychosis, [Norbery] *25 ALOHOLS, industrial, toxicity, 553 ALDEHYDE, chromosome chemistry, 802—ab ALIMENTARY TRACT: See Digestive System ALIMEMENT chart, formula suggested, [Barbour & Hamilton] 248—C ALLEGIANCE, pledge of, taken by medical students and interns, 330—SS ALLERGY: See Anaphylavis and Allergy ALMANAC, NEBRASKA HEALTH ALMANAC, 823—E ALOE Cold Ray Quartz Lamps, 978 ALOPECIA areata of dental origin, [Grace] 1406—ab from cyverine hydrochloride, [Levin & Behrford 1988]

from cyrerine hydrochloride, [Levin & Behrman] *41
ALPHA Epsilon Delta at North Carolina, 334

ALPHA Epstion Benta at North Catolina, 65

-SS
Omega Alpha at Wayne, 1022—SS
ALTITUDE, High: See also Aviation
high, effect on persons with pneumothorax,
[Lovelace & Hinshaw] *1275
high, transfusion in bronchopneumonia of
infants, [Arce Larreta] 674—ab

ALUMINUM cooking utensils, Force's propaganda against, 1512—BI hydroxide, effects on phosphorus absorption, [Freeman] 838—C Hydroxide Gel N. N. R., (Schieffelin) 49; (MacAllister), 897
ALZHEHMER'S Disease: See Insanity, presentle AMBULANCES. British American Ambulance Corps, 146, 541
dispatch of, St. Louis, 1455
officers, sailors and employees donate, to England, 147
riding dutles, interns relieved of, 905
unnecessary calls and shortage of interns, N. Y., 55
AMERAS, genitoanal proliferations caused by; emetine treatment, [Goenawan] 326—ab
AMENORRHEA, chances for pregnancy after long period of, 1026
hypopituitarism (Lorain-Levi type) and, [Ornstein] 234—ab
in diabetic, estrogen, thyroid and progesterone not contraindicated, 1170
treatment, placental blood injection, [Halbrecht] 1015—ab
treatment, progesterone, estradiol benzoate or pregneninolone, [Zondek] *705
AMERICAN See also Latin American; Pan American; South American, United States, list of societies at end of letter S
Academy of Opithalmology and Otolaryngology, (joint committee on industrial ophthalmology) 61, (meeting changed), 992
Academy of Pediatrics, (regional meeting postponed) 831

Academy of Pediatrics, (regional meeting postponed) 831
Academy of Tropical Medicine, (Theobald Smith Medal awarded) 465
Association for Advancement of Science, (Thousand Dollar Prize) 831
Association for Study of Neoplastic Diseases, 1381

Association for Study of Neoplastic Diseases, 1381

Association for Thoracic Surgery, (cancels meeting) 992

Association of Anatomists, (meeting) 993

Association of Cereal Chemists, (Osborne Medal) 547

Association of History of Medicine, 1506

Association of History of Medicine, 1506

Association of Heuropathologists, official orgens, (meeting) 1152

Association of Obstetricians, Gynecologists and Abdominal Surgeons, (Foundation Prize) 60

Association of Obstetricians, Gynecologists, (meeting) 992

Association of Pathologists and Bacteriologists, (meeting) 992

Association of School Administrators and A M A. Bureau, 1473—08

Australian Association, (organized) 477

Board of Dermatology and Syphilology, (evaninations) 745, 1506

Board of Obstetrics and Gynecology, (evaninations) 745, 1506

Board of Obstetrics and Gynecology, (evaninations) 472

Bureau for Medical Aid to China, 1506

Casualties at Pearl Harbor See World War II Chemical Society committee on pronouncing "amide," "sulfamilamide" "sulfathiazole," (Council report) 378

College of Chest Physicians, (Annual meeting), 1233

College of Radiology, 746

College of Chest Physicians, (N Y chapter) 239
College of Physicians, (annual meeting), 1233
College of Radiology, 746
College of Surgeons, (aid to wrecked British museum) 312; (meeting dates changed) 549; (one-day sessions on military medicine) 733, 985, 1456, (cooperate with A M A. on hospital census) *1034
Committee on Maternal Welfare, (instructions on care of babies during air raids) 985
Congress of Physical Therapy, (regional meeting) 990, 1152
Congress on Obstetrics and Gynecology, (meeting) 993
Dental Association, (questionnaire information for military service) 628
Federation for Clinical Research, 1381
Gastroscopic Club organized, 910, (first meeting) 1310

Gastroscopic Cutto organized, 910, (that meeting) 1310

Health Resort: See Health resorts

Heart Association (wants data on clinics),

[Burgee] 1317—C

Hospital Association, (revises MANUAL OF

HOURSES 1311—C
Hospital Association, (revises Manual or
ESSENTIALS OF GOOD HOSPITAL NURSING
SERVICE), (Council report) 1148—OS,
(special committee on protection of hospitals) 1374
Industrial Hygiene Association, (meeting)
1152

1152

Industrial Hygiene Association, (meeting) 1152
Laryngological, Rhunological and Otological Society, (western section) 309; (eastern section) 310
Library Association, (Committee on Ald to Libraries in War Areas) 746; (Rockefeller Foundation atds) 1310, (Joint Committee on Importations) 1464—OS
Medical Diffector, (report) 1465—OS, (indicating foreign credentials in) 1497—OS
Medical Golfing Association at Atlantic City Session, 988—OS
Museum of Health report, 1380
Museum of Safety, (contest), 549
Nations, medical relationships, [Stice] *234
Orthopsychiatric Association, 472

AMERICAN—Continued
Pediatric Society, 1233
Pharmaceutical Association (joint medicalpharmaceutical conference with A. M. A)
617; 900—E; 1145—E; (program on sulfonamides) 991; 1372—E
Pharmaceutical Manufacturers' Association,
(Award of Distinction to Dr. Spies), 60
Physician's Art Association, (annual exhibit)
1381

Physicians Serving in England. See World War II

Physicians Serving In England See World War II

Psychiatric Association, (graduate education) 831; (contest for design of emblem) 992; (standards set by) [Overholser] *1024, (meeting) 1506

Public Health Association, (A. M. A cooperation with) 1474—0S

Red Cross: See Red Cross, American Respirator, 978

Social Hygiene Association, (syphilis test required of industrial employees) 549

Society for Control of Cancer, (Women's Field Army Assembly abandoned) 831, (election) 1310, (campaign) 1506

Society for Pharmacology and Experimental Therapeutics, 993

Society of Anesthetists, (election) 472, (regional meeting) 1232; 1380

Surgical Association, 993

Veterinary Medical Association, 628

AMERICAN MEDICAL ASSOCIATION

American College of Surgeons and, cooperate on census blanh, *1034

AMERICAN MEDICAL DIRECTORY, (report) 1465—0S, (indicating foreign credentials) 1497—0S

Annual Conference of Secretaries of Constituent Associations, 1459—0S

Aliantic City Session (Industrial Health Jan 12-14, 1942 (Industrial Health Jan 12-14, 1942 (Industrial Health Jan 12-14, 1942 (Industrial Health Jan 12-14, 1942 (Industria

meeting Feb. 1942) 906—05, (report) 1460
—05
Bureau of Exhibits, (report) 1483—05
Bureau of Exhibits, (report) 1483—05
Bureau of Exhibits, (report) 1483—05
Bureau of Health Education, (health education for industrial workers) (Bristoll 650—ab; (graduate students to observe its work at Headquarters) 906—05; (radio program) 1220—E; (report) 1473—05
Bureau of Legal Medicine and Legislation, (federal income tax on accounts received for persons in military service) 306; (physicians federal income tax) 367—05; (Mr. Holloway appointed director) 906—05; (report) 1474—05
Bureau of Medical Economics, (report) 1480—05
Chemical Laboratory, (report) 1470—05
Committee on American Health Resorts, 379; 381—E; (work of, rules adopted) 1487—05
Committee on Medical Preparedness, 1480—05, 1481—05; 1481—05; 1481—05; 1481—05; 1481—05; 1481—05; 1481—05
Committee on Medical Research, (fund for cardiologic research) 910, (grant for clinical medicine and public health) 992, (report) 1491—08
Committee on Therapeutic Research, (report) 1491—08
Committee to Confer with Specialty Boards proposed, 1488—05

Committee to Confer with Specialty Boards proposed, 1488—08
Committee to Study Air Conditioning, 1483—08
Committee to Study Air Conditioning, 1483—08
Committee to Study Relationship of Medicine and Law, 1488—08
Committees, new appointments to various committees, 906—08
Congress' See subhead: Annual Congress Constitution, (proposed amendment) 1160—09
Cooperation with Ia) organizations, report, 1473—08
Cooperation with U. S. governmental agencies,

cooperation with U.S. governmental agencies, 1471-08

1471—08
cooperation with U. S. Office of Education on packets for consumer education, 260—08.
1485—08
Cooperative Medical Advertising Bureau, (report) 1465—05
Council on Foods and Nutrition, (indiverignate administration of vitamina to indistrial workers) *618; 623—E; (dicussion) 652—ab; (Niccin and Niacin Amide) \$19, 823—E; (Foodex) 1450; (report) 1169—08; 1486—08

AMERICAN MEDICAL ASSOCIATION - Continued

tinued
Council on Industrial Health, (Annual Congress on Industrial Health) 148—0S, 641
—0S; (Indiscriminate administration of vitamins to industrial workers) *618, 623
—E, (discussion) 652—ab, (joint session with subcommittee of Federal Security Agency) 624—E, 1228—0S, [Seeger] 641—ab, (report of Council's work) [Seeger] 641—ab, (teaching of Industrial health) *731, (Medical Serice in Industrial health) [Seeger] *1017, (report) 1470—0S, 1486—OS
Council on Medical Education and Hospitals (continuation courses for practitioners) 54

industrial nealth) [seeger] *1017, (report) 1470—0S, 1486—0S

Council on Medical Education and Hospitals (continuation courses for practitioners) 54
—E, *69, *1390, (accelerated curriculum of 36 consecutive months) 228—E, 735—E, 751, 988, (death of secretary, Dr Cutter) 398, 744, 1148—0S, (U of Georgia School of Medicine dropped) 751, (Dr Weiskotten appointed secretary, 900—E, 906, (meeting with representatives of Association of American Medical Colleges) 906—OS, (hospital data) *1053 1144—E (report of meeting, Feb 15, 1942) 1148—OS, (report) 1495—OS, (essentials of approved internship) 1497—OS

Council on Pharmacy and Chemistry (pronuciation of 'amide' "sulfanlimide' and "sulfathlazole') 378, (nasal inhalant preparations containing petrolatum) 378, (Coll Metabolia Tosse) 456 461—E, (annual meeting) 616, (authorized to appoint Committee on Contraceptives) 617 (Bismuth Ethylcamphorate Uppohn) 896 (Dr Smith appointed acting secretary) 906—OS, (alcoholic ellairs of thiamine hydrochloride) 979, (zinc perovide and sulfonamdes in treating gas gangrene) 931—E (report on progesterone vs U S P XII Revision Committee) 1216, (tribute to Soma Weiss) 1369, (report) 1465—OS, 1486—OS

Council on Physical Therapy (acceptance of ultraviolet lamps for disinfection of air) 298 (Handbook on Amputations) 1445—E, (accepted devices are safe and convenient) [Hibben] *1038, (report) 1467—OS Council on Scientific Assembly, (report) 1500—OS

Councils, appointment to 906—OS

-0S
Councils, appointment to 906-0S
Distinguished Service Medal, (nominations open) 1300-E
Division of Drugs Foods and Physical Therapy (report) 1465-0S
dues for 1942 now payable, 144-E
dues, payment of and physicians in military service, 1460-0S
employees, number, 1461-0S
Exitous, (report) 1466-0S
Exitous, (report) 1466-0S
Exitous, (report) 1466-0S
Exhibits See also subhead Scientific Exhibit exhibits and moving pictures available for loan from Headquarters 1483
financial statement 1460-0S, 1494-0S, 1495-0S

1495—OS

Fourth of July injuries, 5th annual summary,

golf tournament, Atlantic City Session, 988 -08

Truts available, 910, 992, 1468-0S, 1489 -0S, 1491-0S HANDSOOK ON AUPUTATIONS 1145-E, 1467 -os

-08
hospitals approved and registered by, *1071
*1134, (Council report) 1149-08, 1496
-08, (essentials) 1497-08
Hygcia, (contest winners) 1229-08, (report)
1463-08 (clipping loan service) 1473-08
income and expenditures, 1460-08, 1494
-08 1495-08
NDEN AND DIGEST OF OFFICIAL ACTIONS,
(report) 1482-08
Indictment See subhead U S Department
of Justice

Inter American relations [Stice] *234
INTERNS' MANUAL, (report) 1466—OS
Internships approved by—rotating mixed and
straight, *1068, 1498—OS (essentials) straight, 1497-08

JOURNAL (report) 1461-0S, (subscribers) 1462-0S

journals Spanish periodical to contain ab stracts from its publications [Stice] *237 journals (special), (appointments to editorial boards of; 906-08 (report) 1463-08 lawsuits against, 1494-08 Library, (report) 1464-08 1495-08 Library, and Order Reportment (recent) 1467-08 [Milling and Order Reportment]

Wailing and Order Department, (report) 1465

—08
medical pharmaceutical conference by American Pharmaceutical Association and 117, 900—E, 1145—E, 1372—E
Medical Service: IN INDEREN Series (introduction) vol 115 1099, (place of medicine in industry) 115 1277, (industrial medical dept—floor plans and equipment) 117 34 (plant hygiene studies) 118 818, (outline of procedure for physicians in industry) 895
membership 1459—08

membership, 1459-08

AMERICAN MEDICAL ASSOCIATION - Con tinued

tinued
New And Nonofficial Remedies, (list of drugs omitted from, Council decision) 616, (report) 1466—08
Officers, (reports) 1459—08
Pachage Library (report) 1464—08
Pan American Session See subherd Atlantic City Session periodic physical examination, longevity of physicians, 1299—E
press releases, American Medical Association News, 1463—08, 1486—08
QUARTERIA CUMULATIVE INDEX MEDICUS, (report) 1464—08
questionnaire for Procurement and Assignment Service, 628, 1480—08
rudio program, "Doctors at Work" audience check, 1220—E, (also other services) 1473—08

-08

resolution on committee to study serum sensi tivity, 1500-OS resolutions be printed in the Handson, 1459

hools approved for technicians *1135 *1136, (list of) *1136-*1143, 1149, 1497 -OS schools

Committee on Industrial Dermatoses report, [Lune & others] *613
Section on Ophthalmology and Syphilology, [Lune & others] *613
Section on Ophthalmology (joint Committee on Industrial Ophthalmology) 611 [Spell & Committee on Industrial Ophthalmology) 611 [Spell & Committee on Industrial Ophthalmology) 611 [Spell & Committee on Industrial Ophthalmology) 611 [Spell & Committee on Industrial Ophthalmology) 611 [Spell & Committee on Industrial Ophthalmology) 611 [Spell & Committee on Industrial Ophthalmology) 611 [Spell & Committee on Industrial Ophthalmology) 611 [Spell & Committee on Industrial Ophthalmology] 611 [Spell & Committee on Industrial Ophthalmology] 611 [Spell & Committee on Industrial Ophthalmology] 611 [Spell & Committee on Industrial Ophthalmology] 612 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on Industrial Ophthalmology] 613 [Spell & Committee on In

Industrial Ophthalmology 61, [Snell & others] *610
Session on Legal Medicine, 1500—OS
Sessions for General Practitioners 1500—OS

sessions for General Fracultoners 1990—OS Treasurer's Report 1494—OS Vice President Charles Alfred Dukes, death, portrait 996 visual aculty reading card 1170 US Department of Justice indictment, 1488 —OS

U S I -0S

—OS

USEFUL DRUGS (report) 1466—OS

war effort participation in 1484—OS

War effort participation in 1484—OS

War Mcdicine (to be published monthly) 906

—OS, (report) 1463—OS

Woman's Auxiliary See Woman's Auxiliary

AMERICAS, Finlay Institute of established at

HATINA 230—E (correction) 473

AMERONGEN, GUY, established prize, 63

AMIDE pronunciation of (Council report), 378

AMINO ACIDS deficiency in food ration,

France 475

metabolism, diagram, [King & others] *597

France 475
metabolism, dlagram, [king & others] *597
metabolism in ischemic kidnes, 899—E
AMINOACETIC Acid See Acid
AMINOPHYLLINE N N R (tablets or solution, Miller), 141
present status of, (Council decision), 616
use in myocardial infarction (reply) [LeRoy
& Snider] 556—C
AMINOPYRINE N R tablets, (Merrell),
1217
AVIONIUM chloride effect on intestinal ph
262

262
cltrates, shortens hemoglobin regeneration period [Fowler & Barer] *421 (discussion) 430—ab
AMAIOTIN N N R dosage form, 1217
AMPHETAMINE (benzedrine) inhalants in oils vehicles (Council report) 378
effect on dark adaptation [Yudkin] 1521—ab sulfate as corrective in epileps, (Robinson] 80—ab

sulfate as corrective in epileps, (Robinson] 80—ab
AMPUTATION course for military men, tuition waived New York U 829
arterloscierosis in amputated legs, [Lisa & others] *1353
HANDROM OF AMPUTATIONS, 1145—E, 1467
—08

-08
treatment zinc peroxide [Pulaski] \$46-ab
waiter of physical defects for limited service
officers 1146

treatment zinc peroxide [Pulaski] %46—ab waiver of physical defects for limited service officers 1146
AMIL nitrite by inhalation as vasodilator, 181
AMILASE Test See Pancreatitis
ANAIGESIA See Anesthesia
ANAPHILAMS AND ALLERGY See also Asthma Eczema, Hay Fever, Urticarla adendectomy in, 420
'allergie' and "altergizing' rheumatic dis ease [Kallmeter] 25%—ab
Altergy Flectric Mask, 48
diagnosis intracutaneous testing 858
factor in idiopathic epilepsy, [Dewar] 410—ab
fatal diodrast injection in urography, [Gold burgh & Baer] *1051
histamine desensitization 1422
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]
\[
\]

-ao reaction (near fatai) to transfusion with dried plasma, [Polayes & Squillace] *1050 Sensitivity to Food See Food sensitivity to human dander, [Hampton] 486

Sensitivity to Light Sec Light, sensitization

ANAPHYLAXIS AND ALLERGY—Continued sensitivity to poison try, hyposensitization by ingesting leaf, root or oleoresin, [Shelmire] 669—ab, [Gold] 1409—ab sensitivity to soaps, [Lane & Blank] *815, 1169

sensitivity to sulfathnazole [Lyons & Balberor] *495
sensitivity to war gases mustard gas (HS) and tear gas (CN) [Lewison] 249—C serum reaction acute agranulocytosls, [Cross] 1521—ab
serum shock, A M A resolution on committee to study, 1500—OS
serum shock 2 hours after injecting tetanus antitovin, [Blotner] *219
skin irritant (primary) defined, [Lane & others] *614

antitovin, [Biother] *219
skin irritant (primary) defined, [Lane & others] *614
Society for the Study of Asthma and Allied Conditions, 393
tonsillectomy in, 420, [Coates] 1013—ab
treatment by histamine azoprotein, [Sheldon]

ANATOMISTS, American Association of, meet-

ANATOMISTS, American Association of, meeting 93
ANCYLOSTOMIASIS (hookworm) in Netherland West Indies, [Spitzer] S52-ab treatment hetylresoreinol or tetrachlorethylene, 679 [Brown] 1158—C
ANDROGENS See also Pregmeninolone effect on blood count of men, [McCullagh] 1003-ab

effect on blood count of men, [vectulagin]
1003—7b

effect on natural resistance to infection, [von
Haam] 1002—7b

effect on serum calcium in skeletal cancer
metastases, [Farrow & Woodard] *339

percutaneous potency, [Greene] 561—7b,
[Hollander] 1406—7b

secretion, and treatment of climacteric in
aging men vs menopause in women, 458—E

testosterone and ganecomatia 338

testosterone propionate for angina pectoris
[Lesser] 1411—ab

testosterone propionate for vesical paralysis of
central origin [Castello] 849—ab

testosterone propionate olntment for postclimacteric dermatores in men, [Hollander]
1406—ab

1406—ab ANEVIA S

climacteric dermatoses in men, [Hollander]
1406—ab

NEMIA See also Anemia, Pernicious
effect of large doses of estrogens on blood
pleture of dogs [Tyslowitz] 323—ab
ellipite erythrocytes in 86 members of 3 interrelated families [Wyandt] 670—ab
hemolytic, acute after sulfathlazole sodium
lactate in distilled water, (correction) 157
hemolytic, toxic reactions to sulfapyridine,
[Goldbloom] 486—ab
in glomerulonephritis, 1525
macrocytic hyperchromic, incubated beef
muscle extract vitamin B and liver extract
for, [Moore] 1161—ab
macrocytic hyperchromic, without gastic
achylla, [Nielsen] 90—ab
refractory, etiology of [Bomford] 99—ab
secondary (fron deficiency), sign of malnutrition, [Jolliffe & others] *417 *418

"sickle cell," cerebral necrosis in [Connell]
*833
sickle cell," cerebral necrosis in [Connell]

sickle cell heart in [Klinefelter] 1005-nb Splenic See also Splenomegals, Banti's dis-

splenic, differentiating from splenic metaphasia [Reich & Rumsey] *1200
treatment crysthrocyte suspensions in [Williams] 755-ab
treatment splenectomy in [Pernokis] *865
NEWIA, PERVICIOUS, achylia gastrica and,
[Foa] 1005-ab
deficiencies in 1025
crysthropolesis in, of primitive type, [Agress]
1004-ab
liver Cirrhosis and Thotal 2020.

deficiencies in 1025
erythropolesis in, of primitive type, [Agress]
1004—ab
liver cirrhosis and [Hotz] 928—ab
liver insufficiency role in [Harris] 1105—ab
treatment liver preparations N N R (solu
tion Drug Products) 49, (injectable extract
—Fndo) 141, (purified solution Merrell)
227, (purified solution—Lakside) 1471
AMFSTHESIA See also Medicolegal Abstracts
at end of letter M
cyclopropane at Rochester General [Sahler
& others] *1042
cyclopropane, new carbon dioxide absorbent
Baralyme [Kilborn] 183—ab
ether, in pulmonary tuberculosis, [Beecher
& Addams] *1201
evipal soluble [Searles] *117
Scipal Solutie N N R, (description) 140
(Winthrop) 140
in obstetries paraldehade or tenzyl alcohol as
cause of fatality, [Spect] cf—C
intracenous with short acting barbiturates
[Searles] *117
local traitment of rib fractures and chest
will Injuries [Harmon & others] * 0
pentothal solution [Searles] *117
spinal and Inhalation is postoperative re
spirators infections [13 ford] 1007—ab
spinal continuous, by refeated infections into
subarachnoid space [Burford] 1012—ab
spinal serial Lemmon * technic [Haugen]
1517—ab
vorting after, Incidence, [Davies] 150 ab
warting after, Incidence, [Davies] 50

voriting after, incidence, [Davies] 159 ab wartime [Phillips] 404-ab

ANESTHETISTS, American Society of, (election) 472; (meeting) 1380 surgeon mutual relationship, [Gillespie] *787

ANEURYSM, arterioscierotic, and senile ectasia of thoracic aorta, [Ruffin] 167—ab cirsoid, [Davies-Colley] 88—ab cirsoid, of chest wall, [Eckhoff] 88—ab ANGINA, Agranulocytic: See Agranulocytosis, Acute

Acute
Ludwig's, sulfonamides in (especially sulfathiazole), [Conway] *953
ANGINA PECTORIS, differentiating from hiatus esophageal hernia, [Jones] 1255—ab complications, gastric ulcer, 1422 treatment, ligation of great vein, [Fauteux] 170—ab

treatment, oct31 nitrite inhalation, [Freed-berg] 167-ab

treatment, testosterone propionate, [Lesser] 1411-ab treatment, various drugs, [Freedberg] 167

ANGIOMA: See also Hemangioma
of upper eyelid, solidified carbon dioxide applicator for, [Carpenter] *296
ANGIOTONIN inhibitor, clinical effect, [Taylor]
1244—ab; [Zichis] 1244—ab; [Murphy]
1245—ab

ANGLO-SOVIET. See under England ANHYDROHYDROXYPROGESTERONE:

Pregneninolone
ANILINE Dyes Treatment See Bladder ulcer ANILINE Dyes Treatment See Bladder ulcer ANILALS See also Chicken, Dogs, Mice, Turkeys, etc.
arctic, toxicity of livers of, 337, (reply) [Sutton] 1026 encephalitis infection in; quarantine period advocated, [Hammon] 66—C statement of animal sources must be stated on label, (Council decision), 618
ANKLE straps to prevent deformities in arthritis, [Joplin & Baer] *943
ANKYLOSTOMIASIS. See Ancylostomiasis ANNALS See Journals
ANOMALIES: See Abnormalities, Eyes, Fingers; Heart; etc

gers; Heart; etc
ANTIBODIES: See also Antigens
febrile destruction of, 1371—E
neutralizing, after influenza A, [Horsfall]

neutralizing, in serums of mothers and infants, [Rickard] 561—ab skin-sensitizing, to human dander, [Hampton]

skin-sensitizing, to human dander, [Hampton]
486—ab
specific and nonspecific, in preserved plasma,
[Strumia & McGraw] *427
ANTICOAGULANTS: See Blood coagulation
ANTI-DRINK, 246—BI
ANTIGENS: See also Antibodies
lygranum, to diagnose lymphogranuloma
venereum, [Palmer & others] *517, 537

ANTIHORMONES, antigonadotropic, antithyro-tropic, [Joel] 176-ab ANTIPNEUMOCOCCIC Serum See Pneumo-

coccus

COCCUS
ANTISEPTICS. See also Disinfection, Germicides; Sterilization, Bacterial
totic and pharmacologic properties, [Robinson] 1255—ab
ANTISERUM. See Pneumococcus

son 1235—30
ANTISERUM. See Pneumococcus
ANTISPASMODIC. See Cramps
ANTISTREPTOLYSIN 0 titer of serum in
acute rheumatism, [Green] 175—ab
ANTITONIN. See also Diphtheria; Tetanus
Koch's Synthetic Antitoxins, 734—E, 1373

ANTRIM, F. S., fraudulent salesman, 831
ANTUITRIN-S: See Gonadotropins, chorlonic
ANURIA: See Urine suppression
ANUS, NIH cellophane tipped swabs for pinworms, 93
proliferations caused by amebas, [Goenawan]

326-ab
AORTA, glant cell chronic arteritis involving,

AORTA, glant cell chronic arteritis involving, [Glimour] 175—ab thoracic, senile ectasia of, [Ruffin] 167—ab AORTIC VALVE, regurgitation, prognosis of survival, [Drs] *265
AORTITIS, syphilitic, bismarsen or bismuth sallcylate intramusculari, for, 494
APHASIA, from insuln "shock"; electroencephalogram in, [Allan & Crommelin] *373
APHONIA in telephone operators, 857
APHRODISIAC, nitrates and sexual potency, 858

PPARATUS See also Diathermy; Instru-ments; Sunlamps, Ultraviolet Rays; etc solidified carbon dioxide; "pencil" forming plastic applicators, [Carpenter] *296 treatment of arthritic joints, [Joplin & Baer] APPARATUS.

*937

APPENDECTOMY. See under Appendicitis
APPENDICITIS, acute advanced, sulfathiazole
as adjunct of surgery in, [Anderson] *892
acute, in children, [Deaver] 1331—ab
acute; pelric abscess ruptured rectally; appendectomy 2 months later, [Gottesman & Goldberg] *297

APPENDICITIS-Continued

mortality, factors in, [Muslow] 168—ab; [Bower & others] *1284 mortality, reduced by intraperatoneal sulfanilamide, [Mueller & Thompson] *189 peritoneoscopy—its application, [Hamilton] 668—ab

668—ab
peritonitis; lyophilized convalescent pooled
plasma for, [Bower & others] *1284
peritonitis, sulfathiazole and sulfapyridine in,
[Gottesman & Goldberg] *297
treatment, sulfanliamide implanted in peritoneum, [Jackson & Coller] *194; (misuse),
[Taylor] *960, [Ferguson] 1514—C
APPENDIX, malformation, familial, [Downs]
1328—ab
OWNIRISES [Asthurn] 750, ab. [Schuser]

ovjuriasis, [Ashburn] 559-ab; [Schwarz]

APPETITE and the child, 420
evessive behavior symptom in maladjusted children, [Meloan] 561—ab
ARACHNOIDISM. See Spider bites
ARCE, JOSÉ, resigned, 1313
ARCH Supports See Foot
ARCHIVES. See American Medical Association journals (special)
ARCTIC animals, toxicity of livers of, 337, (reply) [Sutton] 1026
ARDANOI, 246—BI
ARGENTINE chapter of National Gastroenterological Association, \$32, 834
Congress of Surgery (13th), 243
Rheumatism Association convention, 834
ARIZONA, encephalitis epidemic in Pinal Cour-

Rheumatism Association convention, 834
ARIZONA, encephalitis epidemic in Final County, [Meiklejohn & Hammon] *961
ARKANSAS Society of Obstetrics and Gynecology organized, 469
ARMOR. See also Helmets
soldiers in, 833
ARMPITS See Aviilla
ARMS See also Amputation; Elbow, Extremities, Fingers, Hand, Shoulder, Wrist pains in boy, 261
ARMY See also Soldiers War: World War.

ARMY See also Soldiers, War; World War;

Australian, tuberculin tests for militia, 914 British See World War II, European Front Canadian See World War II, European Front

Canadian See World War II, European Front

U. S. See also Medicine and War, World War II, Pacific Front

U. S. Army Medical Library and Museum, (Knopf collection given to) 832, (collection of medical museum material) 985; (new building for) 1476—OS

U. S. (hospital named for General Carl Rogers Darnall) 146, (Office of Surgeon General moved) 147, (history of Medical Dept commences with siege of Boston in 1775) 147, (history of typhoid vaccination dates from 1909) 349—ab, (clitzenship and commission) 634, (commissions in Reserve open to medical school lower classmen) 824, (venereal disease increase in) 824; (need for trained medical personnel to care for health of) [Darnall] *201, (needs 10,000 nurses) 985; (history of nurse corps) 1374 (health of) 1382, 1456

ARSENIC, 3-amino-4-hydrovyphen) dichlorarsine hydrochloride (clorarsen) in treatment of syphilis, [Tompsett] 1010—ab in foods, tolerances for, Council report, 1469—OS in Urine See Urine

ARSENICALS See also Arsphenamine, Manneysten

in Urine · See Urine ARSENICALS See als See also Arsphenamine, Mapharsen

reatment See Cardiovascular Disease syphilis, Gonorrhea, Neurosyphilis, Syph

titalent, fatal reactions, [Hahin] 560—ab
ARSPHENAMINE See also Neoaisphenamine
dermatitis, polkiloderma-like changes in skin
after, [Cannon & others] *122, [Shelton]
664—C
ART See Physicians avocations, Portraits
ARTERIES See also Arterioscierosis, Blood
Vessels; Ductus Arteriosus, Veins, etc
acute embolic occlusion of, to extremities
[Atlas] 1520—ab
Aneurysm of See Aneurysm
Coronary. See also Angina Pectoris; Thrombosis, coronary

bosis, coronary coronary disease and P wave, 93

coronary disease and P wave, 93
coronary, disease diagnosis by carotid sinus
reflex, [Sigler] 1411—ab
coronary disease, survival after perforated
infarcted septum, [Moolten] 1251—ab
coronary occlusion, survival after first attack
[Dr.] *265
coronary occlusion, various diagnostic signs,
prognosis, [Shillito & others] *779
Disease (obliterative). See Thromboanglitis
obiliterans

oonterans
Inflammation. See Arteritis, Endarteritis
Inflammation of acetylcholine, prostigmine and adrenalin, in myasthenia
gravis, [Harvey] 1007—ab
intra-arterial vs auscultator; blood pressure
measurements, 1300—E obliterans

ARTERIES—Continued
Pressure in See Blood Pressure
pulmonary, Ajerza's disease, [Fernandez Pontes] 412—ab; [Toro Villa] 929—ab
retinal, and others, occlusion in relation to
effort, [Sprague] 1330—ab
spasm, induced by walking, causes intermittent claudication, [Leary] 921—ab
truncus arteriosus communis persistens, [Lev]
1255—ab

ARTERIOSCLEROSIS, ancurysms [Ruffin] 167

—ab peripheral, diabetic and nondiabetic, [List & others] *1353; (4 t) pes) *1355 sealle, and psychoses, [Rothschild] 1248—ab ARTERITIS: See also Endarteritis glant cell chronic, [Glimour] 175—ab ARTHRITIS: See also Gout; Periarthritis;

Rheumatism "allergic" an

Rheumatism

"allergic" and "allergizing" polyarthritis,
[Kahlmeter] 258—ab
atlanto-occipital, neck pain from; laminagraph in diagnosis, [Jostes] *353
Atrophic: See Arthritis, rheumatoid
Chronic See Arthritis, rheumatoid
Chronic See Osteoarthritis
menopausal arthraigla, [Ishmael] 923—ab
of eibow, ulnar neuritis due to, [Jiminz
Dias] 928—ab
of hin ischiofemoral arthradesis for [Brit-

Diasj 923—ab
of hip, ischlofemoral arthrodesis for, [Brittain] 87—ab
rejection for military service, 1147
Rheumatold, See also Spine, arthritis
rheumatoid, and vitamins, 493
rheumatoid, diethylstilbestrol for, [Aaron]
403—ab

rheumatold, diethylstilbestrol for, [Aaron]
403—ab
rheumatold, palindromic rheumatism, [Hench]
1013—ab; 1323—ab
treatment of joints: splints, corsets, etc., to
prevent deformities, [Joplin & Baer] *937
tuberculous, [Witteh] 1166—ab
ARTHRODESIS, in spastic paralysis, [Green
& McDermott] *434
ischiofemoral, for arthritis of hip, [Brittain]
87—ab

ARTHROPLASTY, cup, vitallium in, [Cole]

672—ab
ARTIFICIAL Pneumothora See Pneumothorax, Artificial (cross reference)
ASBESTOSIS See Pneumoconiosis
ASCHHEIM-ZONDEK TEST in hydridiform mole and chorioopithelloma, [Ten Seldam]
1336—ab

in testis tumors (Ferguson's method), [Twombly & others] *106

ASCITES, choline chloride and diet low in fat and cholesterol for, [Broun] 1403—ab

ASCORBIC Acid See Acid, ascorbic

ASCORBIC Acta See Acta, associate
ASEPTIC-THERMO Indicator, sterility of autoclaved material, 1263
AS-MA-NORM, 317—BI
ASOCIACION See Association

ASPERGILLOSIS, bronchial, in asthma, [Yogo]

ASPERGILLOSIS, DIOLEMA, A. 851—ab

ASPHYXIA, advanced, resuscitation in; methods compared, [Birnbaum & others] *1364
ASSOCIATED Hospital Service 3 cents a day plan increases benefits, 471

ASSOCIATION See also American Association, American Medical Association, ilst of societies at end of letter S. Asociación Argentina de Médicos Higienistas, 746

Asociación Argentina de Médicos Higienistas, 746
Asociación Médica Argentina, 834
for Advancement of Psychoanalysis, (bulktin on morale) 624—E., (meeting) 1381, (statement) 1507
of American Medical Colleges, (accelerated medical curriculum) 735—E; (A. M. A. Council meets with representatives of) 906—OS; 1149—OS
of American Physicians, 1506
of Internes and Medical Students, (new name after merger), 332—SS
of Life Insurance Medical Directors of America, 393
of Medical Students and the Intern Council, (pledge of allegiance to U. S. A.), 330—SS, (merge to form Association of Internes and Medical Students) 322—SS
of Military Surgeons, 745., (competition open for Wellcome Medal) 1363
ASTHENIA See also Myasthenia neurocirculatory, soldier's irritable heart, [White] *270
with gain in weight, 679
ASTHMA, bronchomycosis aspergillina with, fyogol 851—ab
complications, tuberculosis, artificial pneumothorax in, [Vaccarerza] 1337—BH
nostrum Bumpass Medicine Co., 309—BH
nostrum Bumpass Medicine Co., 309—BH
nostrum Orbert Astima Treatment, 317—BH
Society for the Study of, 393
spinal cord lesion (possible) in, 856
treatment, Allerry Electric Mark, 48
treatment, Allerry Electric Mark, 48
treatment, Hayrin Nasal Filter, 49
treatment, Hayrin Nasal Filter, 49
treatment, histamine azoprotela, [Shelder]

ATABRINE treatment of Glardia infection of gallbladder, [Hartman & others] *608
ATANIA, extreme, Holmes' familial cortical cerebellar atrophy, [Hall] 672—ab
Friedreich's, marriage in—exercises for ataxia,

770
ATELECTASIS: See Lungs collapse
ATEX Novelty Company; Atex Rubber Company,
837-BI
ATHLETE'S Foot: See Epidermophytosis inter-

digitale
ATHLETICS: See also Exercise; Physical boxing, effect on heart, [Butterworth] 1325

-ab football players, specific gravity vs. weight, age, height, [Welham & Behnke] *498 football teams, aminoacetic acid fails to increase work capacity, [King & others] *594 Golf: See Golf injuries, treatment (nonsplinting) of elbow fractures, [Neuwirth] *971 shin splints, 1339 youth and, France, 1155 ATLANTA Clinical Society Lectureship, 743 ATLANTIC CITY Session: See American Medical Association

ATLANTIC CITY Session: See American Medi-cal Association ATLANTO-OCCIPITAL JOINT lesions, lamina-graph dilagnosis, [Jostes] *353 ATLAS-AXIS dislocation after cervical infection, [Martin] *674 ATMOSPHERE: See Air ATOM Smashing: See Cyclotron ATROPHY: See also organ affected as Brain;

Muscular: See also Dystrophy, muscular muscular, comparative study of fibrillation and tremor, [deJong & Simons] *702 muscular, primary, vitamin E for, [Meller] 923—ab

923—ab
muscular, progressive spinal, vitamin E and
tocopherol for, [DeJong] 484—ab
ATROPINE used in myocardial infarction, (reply), [Leroy & Snider] 556—C
AUDIOMETER, Western Electric 4C, 1297
AUROPHONE, Mears, 978
AUROTHERAPY: See Gold therapy (cross ref-

erence)
AUSTRALIA-American Association formed, 477 Commonwealth Serum Laboratories, 913 Flying Doctor service, honor John Flynn for founding, 914

founding, 914
sends medical aid to Russia, 913
social security revived in, 477
white man in the tropics, 995
wireless transmitting apparatus (possession)
order, 477
X disease, virus etiology, [Dingle] 1331—ab
AUTOMOBILES, carbon-monoxide exposure of
traffic officers, [Sievers & others] *585
diabetic motorist, 911
drivers, effect of alcohol on vision, [Newman]
252—ab
soldlers forbidden to hitch-hike, 542

soldiers forbidden to hitch-hike, 542 AUTOPSIES, deaths and, in all hospitals, *1065; *1066

performance in intern hospitals, *1068: *1069; (requirement) 1498—OS tubercle bacilli from fresh material, [Sloan]

AUXODROMES, [Bruch] *1289
AVIATION: See also Altitude, high
Air Raids: See Air Raids
assistants to flight surgeons, 1376
deafness in aviators from noise, [Bunch] 410

-ab

—ab "fiying doctor services" for the Australian "out back" 914
Grant, David W., appointed air surgeon, 542
human factor in, 210—ab |
immunization of Canadian air force, [Sellers] 170—ab

industrial health hazards in aircraft produc-tion, [Russell] 410-ab

industrial neath nazards in aircraft production, [Russell] 410—ab

Institute of Aeronautical Sciences, Major Armstrong awarded John Jeffries Medal by, 550

medical examiners and flight surgeons: Army School of Aviation Medicine, [Tanney] 555—C; [Darnall] **903

medical examiners, course for, 639
ophthalmology and medicine, course in, 153
personnel, care of, [Tanney], 555—C
physicians for, 1145—E; 1146
sinusitis, [Campbell] 1330—ab
transportation danger to persons with pneumothorax, [Lovelace & Hinshaw] **1275
women physicians in air force, England, 1508
AVIDIN, blotin inactivating protein, 982—E;
[Sydenstricker & others] **1199
AVITAMINOSIS: See Physicians
AWARDS: See Prizes

AVOCATIONS: See Physicians
AWARDS: See Prizes
ANILLA, cancer in acrodermatitis chronica
atrophicans, [Pack & Wuester] *579
AYERZA'S DISEASE, [Toro Villa] 929—ab
cyanotic chronic bronchopneumopathy relation to, [Fernandez Pontes] 412—ab
AZOPROTEIN, histamine, in allergic disease,
[Sheldon] 486-ab

BACILLUS: See Bacteria
BACK: See also Spine
support, low spring steel, to prevent deformity
in arthritis, [Joplin & Baer] *91
BACKACHE, brucellosis spondylitis: hyperpyrexia for, [Phalen & others] *859
low, due to intraspinal lesion, neurosurgical
treatment, [Rowe] 408—ab
BACON Lectures: See Lectures
BACTEREMIA: See also Septicemia
complicating true mixed septicemia, [Kanof]
487—ab

487-ab

481—40 gram-negative sporulating bacilius, [Bondi] 83—ab etiology, Staphylococcus aureus, [Skinner] 323—ab

BACTERIA: See also Bacteriophage; Gonococcus; Infection; Pneumococcus; Staphylococcus; Streptococcus; under organs as

cus; Infection; Pneumococcus; Staphylococcus; Streptococcus; under organs as Intestines; Stomach; etc.
Abortus Infection: See Brucellosis aerobic gram-negative sporulating bacteremia produced by, [Bondi] 83—ab bacteriostatic effect of gramicidin and tyrocidine, [Herrell] 1401—ab "coll metabolln" (Tosse) therapy in hay fever, [Loveless & Baldwin] *451; (Council report) 436; 461—E coll osteomyelitis, [Muto] 756—ab coli septicemia with cholecystitis, [Lipshutz] 408—ab

408-

ton septetata with choice; stills, [Linshitz] 408—ab contamination of eating utensils; chlorine compounds to disinfect, 981—E contamination of stored plasma, sulfonamides to prevent, [Norak] *513 contamination of wash basins in operating rooms, [Poppe] 1007—ab Culture: See Gonococcus; Rickettsia; Viruses Gas: See Bacteria, welchii in Blood: See Bacterinia Prefifier's: See Influenza proteus rulgarls as gas producer in diabetes, [Leder] 664—C syntheses by, in intestine, 1219—E

proteins vulgaris as gas producer in diabetes, [Leder] 664—C syntheses by, in intestine, 1219—E types of, in bronchoscopleally aspirated secretions, [Diamond & Van Loon] *776 Welchil: See also Gangrene, gas welchil, antitoxin, value of, (Council decision), 617 welchil, infection, roentgen therapy, 230—E; (correction) 394
BACTERICIDE: See Antiseptics; Disinfection; Sterilization, Bacterial
BACTERIDS, pustular, [Andrews] 754—ab
BACTERIOLOGISTS, American Association of, 992

BACTERIOLOGISTS, American Association of, 992
American, Society of, election, 1152
BACTERIOPHAGE, polybacteriophage for bacillary dysentery, [Soesman] 326—ab
BACTERIUM: See Bacteria
BACTERIUM: See Bacteria
BACTERIUM: See Bacteria
BAKING Soda: See Sodium bicarbonate
BALDNESS: See Alopecia
BALLIN Lecture: See Lectures
BALLIN CARDIOGRAPH recorder of cardiac output, [Katz] 1245—ab
BANDAGE: See Dressings; Medical Supplies
BARALYME, new carbon dioxide absorbent, [Kilborn] 483—ab
BARBITURATES: See also Anesthesia effect on fibrillation and tremor, [dc Jong & Simons] *703
poisoning, (acute), picrotoxin in, [Richards] 1517—ab
BAROLTRIC PRESSURE and rheumatism, 567

Simons] * 7.03
poisoning, (acute), picrotoxin in, [Richards]
1517—ab
BAROMETRIC PRESSURE and rheumatism, 567
aerosinusitis, [Campbell] 1330—ab
decreased or increased, effect on pneumothorax patient, [Lovelace & Hinshaw] *1275
BARR DAVID P., portrait; honored by residents, 1021—SS
BARTLETT "Cures" for Liquor and Tobacco
Habits, 164—BI
BASAL Metabolism: See Metabolism, basal
BASEDOW'S Disease: See Goiter, Toxic
BASIC SCIENCE laws, report, 1478—OS
BASINS: See Wash basins
BATHS, parafin, [Hibben] *1041
tubbling treatment in burns, [Lavender] *316
BATTALION medical officer, [Conn] *1301
BAUER'S Method: See Veins, venographic diagnosis

nosis

nosis
BEAR, polar bear, toxicity of liver of, 337;
(reply) [Sutton] 1026
BEALMONT Lecture: See Lectures
BEDDING: See also Blankets; Pillows
dust laying oils for, [van den Ende] 1416—ab
BEE, Mrs. Bee Femo Caps, 247—B1
BEEF muscle extract: See Anemia, macrocytle
BEEMAN'S Quick Rellef, (BQR), 246—B1
BEES: See also Honey
sting on upper lid, produce detachment of
retina! 682
BEHAVIOR: See also Personality
symptom in maladjusted children; excessive
appetite, [Meloan] 561—ab
BELL Lecture: See Lectures

BELLAMY (Ethel) Eyelash Luxuriant, 246-BI

BELLAMY (Ethel) Eyelash Luxuriant, 246—BI BELOU, PEDRO, news of, 160
BELTRAN, JUAN RAMÓN, news of, 160
BENCE, ALVARO E., news of, 160
"BENDS": See Calsson workers
BENEVOLENT Fund: See Physicians, indigent
BENZEDRINE: See Amphetamine
BENZEDRINE: See Amphetamine
BENZENE exposure vs. effect of inhaling toluene
vapors, [ron Oettingen & others] *584
BENZOL: See Benzene
1:4 BENZOQUINONE, "Koch's Synthetic Antitoxins," 734—E
BENZYL alcohol, as cause of fatality in primipara, [Speert] 66—C
benzoate mixture in scabics, [Lutz] 1016—ab
BERIBERI cause of death in U. S., 1933-1938,
[Joillife & others] *945
BERMIDDA grass, pollen in Brazil, 91
BEVERAGES: See also Coffee; Milk; Tea
Alcoholic: See Alcohol; Alcoholism; Wine
glasses, chlorine disinfection, 981—E
hot and cold, postoperative use in adynamic
ileus, [Bisgard & others] *447
BIBLIOTHECA BRITANNICA compiled by Robert
Watt (1774-1819), 1022—S8
BIGGS Memorial Lecture: See Lectures
BILADA Tablets, Science Laboratories, 318—Bi
BILE DUCTS: See also Gallbiadder; Liver
calculi, transduodenal choledocholithotomy,
[Brattström] 490—ab
common, visualized peristalsis, under fluoroscope, [Macdonaid] 488—ab
BING, F. C., services in war effort, 1486—OS
BINGHAM Associates Fund, gift to Tufts, 239
BIOLOGIC PRODUCTS: See also Serum; Vaccines; etc.
increase in, Michigan, 991
Mexico health dept. manufactures, 1384
BIOLOGICAL ABSTRACTS: See Journals
BIOLOGY, Experimental, Federation of American Societies for, (ail-expense tour) 1150;
(meeting) 1153
BIOPSY: See also Kidney surgery; Uterus
cancer
Ilfe expectancy after, in lymphosarcoma,

BIOPSY: See also Kidney surgery; Uterus cancer

cancer

Iffe expectancy after, in lymphosarcoma,
[Stout] *968

BIOTIN concentrate cures "egg white injury,"
[Sydenstricker & others] *1199

experimental procarcinogenic effect, 982—E

BIEDS Extracesis due to higgen [Allengdy]

BIRDS, psittacosis due to pigeon, [Allcandri] *1214

wild, as vectors of encephalitides, [Hammon]

wild, as vectors of encephalitides, [Hammon] 66—C
BIRDS EYE Brand Quick Frozen Broccoll, 819
BIRTH: See also Labor
Injury: See Brain hemorrhage; Cornea
Multiple: See Twins; Quintuplets
number in hospitals, *1064; 1144—E
number per year of married life, [Beebe &
Overton] *1046
Premature: See Infants, premature; Labor,
premature

premature

premature
Rate: See Vital Statistics
Stillbirths: See Stillbirths
BIRTH CONTROL: See also Medicolegal
Abstracts at end of letter M
A.M.A. Committee to Study Contraceptive
Practices, [Sits] *289
A. M. A. Council on Pharmacy and Chemistry
Committee on Contraceptives, 617
Certane Products: Douche Shields, Applicators, Dia-Caps and Dia-Domes, 216—BI
Federation of America, (conference on planned
parenthood) 311; (citations for distinguished
service) 1152; (name changed) 1232
Planned Parenthood Federation, (formerly
Birth Control Federation; director appointed) 1232

mint Control Federation; director appointed) 1232
"safe periods," [Latz] 1326—ab
services at 3 clinics appraised; type of contraceptives used, [Sitx] *283
services of Nashville health dept., 3 methods

used, [Beebe & Overton] *1045 BISMARSEN Treatment: See Aortitis, syphilitic; Cardiovascular Disease, syphilis; Lupus

erythematosus

BISMUTH carbonate, action in gastric disease, [Alstead] 175—ab Ethylcamphorate N. N. R., (Upjohn) 896; 979; (description) 979

salicylate intramuscularly in patient with poor veins, 494

stomatitis and albuminuria, [Peters] 1250

stomatitis, ascorbic acid in, [Marin] 1269

Subsalleylate in Oil Suspension with 3% Chlorobutanol (Breon), 897 Treatment: See Gonorrhea; Syphilis BITES: See also Rat-Bite Fever; Snakebite;

Spider

human, of hand, [Miller] 1519—ab BLACK Cardiacs: See Ayerza's Disease BLACKOUTS, deep red light better than blue

for, 541
BLACKWATER FEVER, treatment, sulfanil-amide, [Holm] 924-ab

BLADDER: See also Urinary System action of furmethide, [Lipton] 1517—ab fibrosis and submucous calcification of neck, [Fister] *604 inflammation in diabetic, sulfadiazine and sulfathiazole for, [Styron & others] *1424 inflammation, tyrothricin for, [Herrell] 1401—21

paralysis, testosterone propionate for, [Casiel-lo] 849-ab

paralysis, testosterone propionate for, [Casiello] \$49-ab ulcer, Hunner, [Higgins] 169-ab; (aniline dyes for) [Davis] 407-ab; (roentgenotherapy) [Kreutzmann] 407-ab; war Injuries in Chinese-Japanese War, [Nakauchl] 257-ab

BLANCHARD'S (Dr.) Regulator, 246-BI
Lotion, 164-BI
BLANKETS, electrically heated on American ambulances for wounded airmen, 314

BLAST Injuries: See also Air Raids, Lungs, World War II injuries, 398-E
BLASTOMYCOSIS of bone, potassium iodide for, [Jones] \$47-ab
BLANCHOMYCOSIS of bone, potassium iodide for, [Jones] \$47-ab
BLINDNESS, causes of, in Pennsylvania, [Cowan] 169-ab
Color: See Color Blindness congenital, from failure of corneal development, 338
electrography to distinguish true

congenital, from failure of corneal development, 338
electroencephalography to distinguish true from false, [Lemere] *884
industrial, National Society for Prevention of Blindness survey, 157
industrial ophthalmology, A M A Section committee report, [Snell & others] *610
Night: See Night Blindness
Pan American Congress of the Blind (first), 745
waters of which and Acceptance.

waiver of physical defects for limited service officers, 1146 officers

waver of physical delects for limited service officers, 1146
BLISS, HOWARD E, swindles physicians, 550
BLOOD amylase test in acute pancreatitis, [Elman] *1263
antibodies (neutralizing) in serums of mothers and infants, [Rickard] 561—ab
Bacteria in See Bacteremia, Septicemia
Bank See Blood transfusion
"bloody flux," sulfaguanidine for, [Lyon] 1256—ab
calcium, andiogenic and estrogene effect on, in skeletal cancer, [Farrow & Woodard] *339
calcium, hypocalcemia, in laryngeal stridor, dihydrotachysterol for [White] *136
carbon dioxide, sulfadiazine effect on, [Styron & others] *1427
carotenemia in myvedema, [Escamilia] 1253

-ab

carotenemia in myvedemia, [Escamilia] 1253—ab

Cells. See also Erythrocytes; Leukocytes
cells, count of men, effects of androgens [McCullagh] 1903—ab
cells, counts to determine toxicity of sulfanilamide, [Greenwald & others] *975
chemistry and metabolism of yellow fever,
[Soper] *375
chemistry, microanalytic, 934
chloride, treatment of dehydration in infancy,
[Aldridge] 755—ab
chloride to urine volume in Addison's disease, [Kepler] 1404—ab
cholesterol in vanthomatosis, [Bloom] 1329—ab
circulation (artificial) in 20 minute cardiac
arrest, [Adams & Hand] *133
circulation, effects of interrupting and restoing, [Landowne] 1253—ab
circulation, passage of needle into stream.
[Shapiro] 921—ab
Circulation (Renal) * See Kidneys
circulation time in heart failure, [Hussey]
1325—ab
Circulatory Fallure * See Cardiovascular Sys-

1325-ab

Circulatory Fallure . See Cardiovascular Sys

Circulatory Fallure. See Caldiotascular system

Clot. See Blood coagulation; Thrombosis
coagulation, action of toad venom on bleeding
time, [Deronaux] 1166—ab
coagulation, "bubble" method of timing,
[Knauer] 1518—ab
coagulation, clot retraction time in thrombophiebits and pulmonary embolism, [Hirschbocck] 1161—ab
coagulation, effect of anticoagulant solutions on thrombocytes, [Sonder] 364—ab
coagulation plobulin (cow's plasma) for postextraction hemorrhage, [van Creveld] 1405

—ab

—ab congulation, hypoprothrombinemia neonatorum vs vitamin K, [Rouhunkoski] 852—ab congulation, hypoprothrombinemia, vitamin K response; liver function test, [Kark] 1257

coagulation, idiopathic hypoprothrombinemia, [Rhoads] 251—ab coagulation, prothrombin in dried, liquid and fiozen plasma, [Strumla & McGraw] *428 coagulation, prothrombin in newborn; effect of 11amin K on, [Ross] 253—ab coagulation, prothrombin in newborn, vitamin K of clinical value? [Sanford & others] *4097; [Quick] 999—C [Kugelmass] 1389—C; [Waddell] 1389—C coagulation, prothrombin level in nonhemorthagic diseases, [Rawls] 754—ab coagulation, prothrombin time determined with human milk, [Freudenberg] 1334—ab

BLOOD-Continued

coagulation, prothrombin time, effect of di-coagulation, prothrombin time, effect of di-coumarin on, [Meyer & others] 1003—ab, [Barker & others] 1003—ab concentration, 2 hours after injecting tetanus antitovin, [Blotner] *219 conservation of plasma, [Strumia & McGraw] *427

conservation of plasma, [Strumia & McGraw]
*427
conservation of plasma with sulfonamide compounds, [Heath & Province] *1034
conservation, sulfonamides to prevent contamination, [Novak] *513
conserved, sugar content, [Kato] 676—ab
Count See Blood cells
crectinine (plasma) determination as test of kidney function, [Arkin] 169—ab
Cysts' See Adrenals, struma cystica
Destruction See Agranulocytosis, Acute, Anemia, hemolytic, Jaundice, hemolytic
Disease See Anemia, Anemia, Pernicious, Leukemia, Puputa
Donors See Blood Transfusion
Dried See under Blood Transfusion
dyscrasias, choked disk in, [Watkins] 921
—ab

dyscrasias from mapharsen, [Levin & Ked-die] *369

die] *369
estiogens effect on, [MacBryde & others]
1003—ab, *1281
evaminations in toluene-exposed workers,
[Greenburg & others] *573, [von Octtingen & others] *579
films, Hastings' stain for, 936
Flow See Blood circulation
formation, spleen as hemopoletic organ, [Pernokis] *865
forming organs sulfartication

formation, spicen as hemopoietic organ, (Fernolis) *865
forming organs, sulfanliamide toxic effect on, [Greenwald & others] *975
glutathione content, pilocarpine effect on, [Izaki] 414—ab
Groups See also Blood Transfusion
groups, effect of calcium in autohemagglutination, [Parish] 489—ab
groups, isoimmunization in fetal crythroblastosis, 143—E. [Levine] 843—ab
groups, O, transfusion reaction after universal blood, [Klendshoj & McNeil] *528
groups, Raynaud's syndrome with spontaneous
cold hemagglutination, [Benians] 489—ab
groups, typing, rapid card technic, concentrate globulin fractions with sodium sulfate, [Thallimer & Myron] *370
Hemoglobin' See Hemoglobin
in Urine See Hemoglobin
Infusions via Bone Marrow
See Bone Marrow
See Hemograpse

See Hemorrhage

Menstrual. See Menstruation
ONgen (arterial), in treatment of thromboangilits obliterans, [Theis] 1256—ab
phosphatase (acid) increase in prostate cancer 855, [Ajamil] 1166—ab
phosphatase (plasma) in rickets, [Josefsson]
673—ab

673—ab (plasma) in rickets, [Josefsson] fictore in epidemic of catarrhal icterus, [Zlegler] 673—ab

ler] 673—ab
picture of dogs, estrogens in large doses effect
on, [Tyslowitz] 323—ab
Placental See Placenta
Plasma See under various headings of
Blood, Blood Transfusion, Serum
platelets anti-thrombocytic serum, [Shimizu]
736—ab

platelets, effect of anticoagulant solutions on thrombocytes, [Sonder] 364—ab platelets, thrombopenic purpura due to sulfathiazole, [Rosenfeld & Feldman] *974

Preservation See Blood conservation

Pressure See BLOOD PRESSURE proteins. hypoproteinemia in pontropical

Pressure. See BLOOD PRESSURE
proteins, hypoproteinemia in nontropical
sprue, [Oettel] 675—ab
proteins, hypoproteinemia plasma therapt,
[Strumla & McGraw] *428 *429
proteins, hypoproteinemia, protein hydrodysate
orally for, [Belling] 169—ab
proteins, hypoproteinemia, role in delayed
wound healing, [Rhoads & others] *21
proteins in hepatic diseases, electrophoresis
determination, [Grav] 1323—ab
proteins (plasma) prognostic aid in acute
nephritis, [Murphy & Peters] *183
proteins (serum) in liver cirrhosis, [Post]
1231—ab
Prothrombin in See Blood, coagulation

Prothrombin in Sec Blood, coagulation pyruvate in Wernicke syndrome, [Wortis] pyruvate in Wernicke syndrome, [Wortis] 1407—ab sedimentation rate in acute glomerulonephritis, [Rubin] 1254—ab sedimentation rate in cardiac infarction, [Shillio & others] *779

lito & others] *779
sedimentation test in acute nephritis, [Murphy & Peters] *183
Stream: See Blood circulation
substitute, pectin solution, plasmapheresis,
[Hartman] 1161—ab
Sugar: See also Diabetes Mellitus
sugar, aberrant pancreatic tissue with hyperinsulinism, [Smith] *454
sugar content of preserved blood, [Kato]
676—ab
sugar low, in fatty liver degeneration in
pregnancy, [Whitacre & Fang] *1358

BLOOD-Continued

SLOOD—Continued sugar, sulfadilazine and sulfathlazole effect on, [Styron & others] *1423 toluene, concentrations in vs. its concentration in air, [von Octtingen & others] *581 Transfusion: See BLOOD TRANSFUSION Typing: See Blood groups Ourier sal. See Blood groups Ourier clearance in acute nephritis, [Murphy & Peters] *183 urea vs. urine volume in Addison's disease, [Kepler] 1404—ab vitamin A level in, vs. dark adaptation, [Lewis] \$41—ab vitamin B1 in, test for, [Perlzweig & others] *28

BLOOD PRESSURE, clinical measurement: in tia-arterial vs. auscultatory, 1300—E high, after subtotal thyroldectomy, [Blegard] 1329—ab

high, and pyclonephritis, [Kimmel] 1247—ab high chronic, vitamm A therapy, [Goven] 1418—ab

ingh, chasification; paramid illustration, ligh, classification; paramid illustration, ligh, classification; paramid illustration, ligh, from encapsulating renal cast, nephrecetomy cures, [Farrell & Young] *711 high, hapertensive heart disease of long duration, [Flavman] 484—ab high, in chronic glomerulonephilits, 1525 high, in nephritis, [Murphy & Peters] *185 high, juvenile, with unliateral upper urlanary lessions, [Powers & Murray] *600; (discussion) 608 high paroxysmal with tumor of adrenal medula, [Crane] 1010—ab high, pressor (renin) and antipressor kidney extracts, (Council decision) 617 high, renal blood flow in, [Chasis] 324—ab high, renal extract to control, [Murphy] 1241—ab]

high, renal blood flow in, [Unusis] 324—high, renal extract to control, [Murphy] 1245—ab high renal, in children 4½ to 14 years, [Killan] 841—ab high, roentgen irradiation of pituitary, [Pendergrass] 483—ab high, surgical approach to, 6 methods, [de Takats & others] *501, (correction) 532 high, surgical ladney etiologic role in [Bransch] 1251—ab high, surgical treatment, various methods, [Heuei] 84—ab high, survival after first attack of heat failure in, [Dry] *265 high, with renal infarction, pressor substance in perfusates, [Prinzmetal & others] *44 low, postural after splanchnic section and sympathectomy, [de Takats & others] *504 tyrosinase reduces, 899—IP venous, in heart failure, [Hussey] 1325—ab venous, sugical trauma effect on, [Ollinger] 1418—ab \$100D TRANSFUSION Association, [Heath & Provincel *1031

1418—ab
BLOOD TRANSFUSION Association, [Heath & Province] *1031
Blood Bank See also Blood Translusion,

Blood Bank See also Blood Translusion, plasma center blood bank (emergency), Hawati, 241 blood bank, Indiana, 656 blood banks and plasma centers in approved hospitals, *1069 blood banks and plasma centers, Office of Civilian Defense will aid establishing, 1147 blood banks, cooperative program, Maine, 1308 blood banks for civilian defense. U. S. 232

blood banks, cooperative program, Maine, 1308
blood banks for clillian defense, U. S. 232
centers to be organized in all hospitals, train
interns in details, [Samartino] 849—ab
donor dats at Wayne U, 1305
donor service, Chicago, 743
donors, call for, for army, 540; (I million
required) 1303
donors, from Northwestern U, 1020—SS
donors, hemoglobin requeration rate, allow
3 months for, [Fouler & Barer] *421;
(discussion) 430—ab
donors, menstrual blood loss in female donors,
[Fouler] 430—ab in subroute bacterial endocarditis, [Friedberg] 676—ab in bronchopneumonia of infants in high allitudes, [Arce Larreta] 674—ab
in faity degeneration of liver in pregnancy,
[Whitacre & Fang] *1359
in malignant diphtheria, [Behr] 413—ab;
(Pugh] 1333—ab
of banked blood vs fresh blood, [Barker]
1004—ab

1004blood and blood substitutes (correction).

of blood substitutes, [Battaglia] 1522-ab of blood substitutes, pectin vs acacia, [Hartman] 1161-ab of conserved blood, [Hobenwallarr] 929-ab; [Nakamura] 676-ab of conserved blood, anuria after, [Brunner] 178-ab plasma, [Stromba, f. 2100-ab 2407]

178—ab show, anuria after, [Brunner]
plasma, [Strumia & McGraw] *427
Plasma Center. See also Hood Transfusion,
blood banks
plasma center, establishing in communit),
[Horworth, Strumia] 430—ab
plasma, cisilian cooperation at Honolulu and
Pearl Harbor, 465
plasma (dried, liquid or frozen); [Newhouser]
1252—ab

BLOOD TRANSFUSION-Continued plasma in dehydration in infancy, [Aldridge] 755—ab

plasma (lyophile) in hemophilia, [Johnson] *799

plasma (tyophile) in hemophilia, [Johnson]

***709

plasma preparation in small hospital with
Baxter technic, [Semoff] 1414—ab

plasma procuring program, Illinois, 987

plasma, sulfonamides to prevent contamina
tion, [Norak] **513

reaction after universal blood (group O);

[Klendshoj & McNeil] **528

reaction in fetal erythroblastosis, role of iso
immunization, 143—E; [Levine] 843—ab

reaction (near fatal) with dried human

plasma, [Polayes & Squillace] **1050

reaction (rigor) during, [Cross] 1521—ab

sulfonamide derivatives solubility and, 1025

via bone marrow in acute failure of periph
eral circulation, [Tocantins] 844—ab

BLOOD VESSELS: See also Aorta; Arteries;

Capillaries; Cardiovascular System; Vaso
motor System; Veins

damage in pregnancy toxemias [Peckham] 79

—ab

—ab
Disease: See also Cardiovascular Disease;
Phlebitis; Raynaud's Disease; Thromboanglitis obliterans; Varicose Veins
disease (peripheral) cilnics, American Heart
Association wants data, [Duryee] 1317—C
disease, sympathectomy for, [Harris], 922—ab
fragility in nonthrombocytopenic purpura 681
histamine effect on, [Yoneda] 414—ab
iodine distribution in wall, [Masson] 176—ab
BLOODLETTING: See Venesection
BLUE light vs. deep red light for blackouts,

light vs. deep red light for blackouts,

BIUE light vs. deep red light for blackouts, 541

BOARD: See under names of specific boards as American Board; National Board; State Board; etc.
of Education: See Schools of Trustees of A. M. A.: See American Medical Association

BODY Development: See Dwarfism; Growth Heat Production: See Metabolism, basal height; Increasing. Pandiculator, 1240—BI height, specific gravity in relation to, [Behnke & others] *497
height, stature of children, [Meredith] 251—ab height, weight and age of registrants, [Rowntree & others] *1224
height, weight, etc., in children, grid technic. [Bruch] *1289
specific gravity; body weight ÷ volume as index of obesity, [Behnke & others] *495; [Welham & Behnke] *498
swellings precipitated by pressure around menstruation period, 262
Temperature: See Temperature, Body Weight: See also Obesity; and other subheads under Body
weight, asthenla and aching with galn in, 679

weight, asthenia and aching with gain in,

weight of children, [Meredith] 251—ab BOIL: See Carbuncle; Furunculosis BOMBS: See Air Raids; Blast injuries; World

BOMBS: See Air Raids; Blast injuries; World War II
BONDS: See Defense bonds, stamps, etc.
BONE MARROW: See also Osteomyelitis changes produced by estrogens, [MacBryde & others] 1003—ab; *1280 infusions of blood via, in acute failure of peripheral circulation, [Tocantins] 844—ab sternal, undescribed erythrocytogenesis in, [Limarzi] 1004—ab

[Limatzi] 1004—ab

BONES: See also Cartilage: Epiphyses; Musculoskeletal system; Orthopedics; Osteitis; under names of specific bones
blastomycosis, potassium iodide for, [Jones]
847—ab

847-ab

cancer (metastatic), androgens and estrogens affect serum calcium, [Farrow & Woodard] ***339** 

aneet serum calcium, [Farrow & Woodard]

**339
centers of ossification in diagnosis of rickets,
[Sechwarzenberg] 1166—ab
changes from fluorine polsoning, [de Senarclens] 364—ab
congential malformations on nutritional
basis, [Warkany] 1002—ab
diseases, changes due to peanut feeding,
[Kohno] 326—ab
Dislocation: See Atlas-Axis
Fractures: See Fractures
manifestation of malnutrition, [Jolliffe & othcrs] *946
percentage in body composition, effect on
specific gravity, [Behnke & others] *497
Salmonelia schottmülleri isoiated from, [Ecker & others] *1296
surgery, vitallium in, [Cole] 672—ab
thickness of skull of Negroes and white
persons, \$57
transplantation in strumiprivous tetany, [Tu-

persons, 857
transplantation in strumiprirous tetany, [Tu-ral] 675—ab
Tuberculosis: See also Spine tuberculosis
tuberculosis, [Wittek] 1166—ab
tumors, solitary xanthoma, [Puhl] 1418—ab
BOOKS: See also Library: Literature; Book
Notices at end of letter B
in Figulish translated for Pan American use

in English translated for Pan American use, [Stice] *237 thinner; paper rationed, England, 1508

BORAX-formaldehyde solution for disinfecting instruments, 94
BORDEN Company grant to Irvington House for work on rheumatic fever, 382
BOSTON University goes on 12 months basis, 333—SS

333—SS
BOTTLES: See also Label
dropper, nose drop contamination in, [Gompertz & Michael] *1287
BOWES Tablets for hyperacidity, 163—BI
BOWELS: See Intestines
BOWMAN Gray School of Medicine, creates
department of neurosurgery, 311
BONING effect on heart [Butterworth] 1225

department of neurosurgery, 311
BOXING, effect on heart, [Butterworth] 1325
—ab
"BQ," "Koch's Synthetic Antitoxins," 734—E
BQR (Beeman's Quick Relief), 246—BI
BRACHIAL PLEXUS; compression of; scalenus anticus syndrome, [Reichert] *294
neuritis in epidemic form, [Wyburn-Mason]
1165—ab

1165—ab
BRACKENBURY, Sir HENRY, death, 1233
BRAIN: See also Cerebellum; Crantum; Menlnges; Nerrous System
abscess, electroencephalogram, [Gibbs] *216
atrophy, Holmes' familial cortical cerebellar,
[Hall] 672—ab
damage from insulin "shock;" electroencephalogram in, [Allan & Crommelin] *373
Disease: See also Epilepsy; Paralysis agitans;
etc.

ette. disease, alcoholic encephalopathia, hydration plus vitamin therapy for, [Joiliffe] 1248—ab disease, encephalopathia saturnina in printer, [Santillan] 85—ab edema, plasma therapy, [Strumia & McGraw] *429

Electroencephalogram: See also other sub-

*429
Electroencephalogram: See also other subheads under Brain electroencephalogram. diagnostic and prognostic value. [Gibbs] *216
electroencephalograms, study of 100 abnormal ones, (Vasconcelos) 673—ab electroencephalography to distinguish true from false blindness, [Lemere] *884 foreign bodles (shrapnel) in, from bombing Hawaii on Dec. 7, [Cloward] *267 Hemorrhage: See also Menlages hemorrhage: Polioencephalitis, hemorrhage in newborn, effect of vitamin K, [Sanford & others] *699; [Quick] 999—C: [Kugelmass] 1389—C: [Waddell] 1389—C: Inflammation: See Encephalitis; Meningoencephalitis; Polioencephalitis; Meningoencephalitis: Polioencephalitis (Lindquist) 1324—ab Syphilis: See Neurosyphilis thromboangiitis obliterans of, [Antoni] 929—ab

tumors, encephalogram in, [Gibbs] *216 tumors, malignant meningiomas, [Turner] 1256—ab

tumors, spinal fluid examination, [Bligaard] 490--ab

tumors, spinal fluid examination, [Bligaard]
490—ab
ventricles, intraventricular drainage for cystic
craniopharyngioma, [Scarff] 81—ab
wounds, Intracranial use of sulfadiazine,
[Hurteau] 1251—ab
wounds, treatment, [Horrax] 753—ab
BRAZIL, leprosy in, 1236
most largely populated cities in, 552
pollens in, 94
BRAZILIAN Congress of Ophthalmology (fifth),
659, 1236
Congress of Surgery, 552
press, Portuguese language for, 831
BREAD, digestibility of carbohydrates, fats
and residue in, [Sealock] 845—ab
MODERN BREAD, by Sherman and Pearson,
1218—E
rationing, amount allowed, France, 474

MODERN BREAD, by Sherman and Pearson, 1218—E rationing, amount allowed, France, 474 whole wheat and white, digestibility and biologic value of, [Murlin] 845—ab; [Sealock] 845—ab, whole wheat vs. white, England, 1154; 1312 BREAST cancer, early diagnosis, [Benzadón] 1259—ab cancer, radiation effect on longevity in, [Meland] *274 cancer, skeletal metastases, androgens and estrogens effect on serum calcium, [Farrow & Woodard] *339 hypertrophy in male, gynecomastia, [Sullivan & Munslow] *1443 hypertrophy in male, gynecomastia and testosterone, 338 Margolin's "Developex" for the bust, 1338—BI Milk: See Lactation: Milk, human BREATHING: See Respiration Machines: See Respirators
BRITISH: See also England; Royal; World War Ambulance Corps, 146; 541 Columbia Medical Association explicitors

War American Ambulance Corps, 146; 511 Columbia Medical Association, exploiting medical service plans, 57—OS Journal of Surgery: See Journals Medical Association (Medical Planning Com-mission) 152—OS: 991; (establish national insurance scheme) 477; (committee for medical supervision of industrial workers) 660 f. (recommends increase of fees) 1383 Medical Students Association, 994

BRITISH-Continued

Museum wrecked—expression of gratitude for American aid, 312

Museum wrecked—expression of gratitude for American aid, 312 observations regarding work in first World War and this war, [1yz] *572 War Relief Association of Northern Callfornia, 147 War Relief Society, Inc., 312 BROADCASTING: See Radio BROCCOLI, Birds Eye Brand, \$19 BRONCHI: See Bronchus BRONCHI: See Bronchus BRONCHIECTASIS, differentiating from primary tuberculous infection, [Birkelo] *352 in childhood, [Diamond & Van Loon] *771 surgery of chest, relation to upper respiratory diseases? [Ormerod] 257—ab treatment, rocutgen, [Carpenter] 405—ab treatment sulfathiazole, febrile reactions to readministration, [Lyons & Balberor] *956 BRONCHOTIS, winter, 568 BRONCHOTIS, winter, 568 BRONCHOGRAPHY, technic of, [Adams & Davenport] *111 clnematography, 662; [Castex] 1258—ab in bronchiectasis in childhood, [Diamond & Van Loon] *771 BRONCHOMYCOSIS aspergillina in asthma, [Yogo] 851—ab BRONCHOPNEUMONIA of infants in high altitudes, transfusion for, [Arce] 674—ab BRONCHOSCOPY in bronchiectasis in child-

BRONCHOPNEUMONIA of infants in high altitudes, transfusion for, [Arce] 674—ab
BRONCHOSCOPY in bronchicetasis in childhood, [Diamond & Van Loon] *771
without laryngoscope, [Mikell] 562—ab
BRONCHUS, cancer (primary), [White &
others] *862
cancer (primary) and pulmonary asbestosis,
[Holleb] 1248—ab
cyanotic chronic bronchopneumopathy and
Ayerza's disease, [Pontes] 412—ab
factor in pulmonary embolism, [Jesser] 1404
—ab

-ab nomenclature pertaining to, [Adams & Davenport] *111
Roentgen Study: See Bronchography
BROOKLYN Academy: See Academy
BROWN, D. H., fraud, 838-BI
BRUCELLOSIS, Hastings' stain for blood films,

936
in Massachusetts, [Feemster] 1011—ab
spondylitis; physically induced hyperpyrexia
for [Phalen & others] *859
BRUSH abrasives to remove dirt, [Lane &
Blank] *807
wash and brush paints, chemical analysis of,
[Greenburg & others] *575
BUBONIC Plague: See Plague
BUCK'S Special Mixture, Washington Health
Research Laboratories, 318—BI
BUENOS AIRES, University of: See University sits

BUERGER'S DISEASE: See Thromboangiltis

BUERGER'S DISEASE: See Thromboangilits obliterans
BUILDING: See Hospitals; Houses
BUILDOCAPNINE phosphate, effect on fibrillation and tremor, [de Jong & Simons] *701
BUMPASS Medicine Co., 399—BI
BUNDLES for Britain, Inc., 1375
BURKWALL, M., nurse slain by Japanese, 740
BURMA Road, medical service on, 512
BURNS, acid; treatment; neutralizing agent, 935

935

Fourth of July injuries from fireworks and explosives, *46

me, of eye: rabbit peritoneum for, [Brown]

169-ab phosphorus, 1421 physical therapy causing; medicolegal aspects, [Hibben] *1038 reatment in children from fire and scalds; wet dressings (Burow's solution); crusting (tannic acid, sliver nitrate, methylrosan-tilne); tubbing; and compression, [Lavender] *344

treatment, plasma, [Strumla & McGraw] *129 treatment, tannic acid plus silver nitrate, [Lavender] *316; [Bettman] 319—ab

[Lavender] *316; [Bettman] 319—ab treatment, 3-dye, [Aldrich] 319—ab ultraviolet, of eye, 1261
BUROW'S Solution: See Burns treatment
BURTONE and Phalene, 217—BI
BUSINESS Women, National Federation of, "Are you ft for the job!" 382—E
BUST Developer: See Breast
BUTTER Substitutes: See Oleomargarine yellow, dyestuff, procarreinogenic effect of blottin, 982—E
BUTTOCKS. Insendoepithellomatous, hyperplasia

tin, 882-E
BUTTOCKS, pseudoepitheliomatous hyperplasia
in multiple pyoderma, [Mercer & Obermayer] *139; [Mercy] 664-C
n-BUTYL-carbitol-thiocyanate for pediculosis,
[MacHaffle] 1251-ab

### BOOK NOTICES

Abbott, Maude Abbott: A Memoir, 1420 About Ourselves: Survey of Human Nature from Zoological Viewpoint, 678 Acidosis, Acidos aminados, 932 Adolescence, Youth and the Future, 1523 Age: See Adolescence; Middle Age Alexander, H. L., Synopsis of Allerry, 933

BOOK NOTICES-Continued BOOK NOTICES—Continued
Allergy, Aterfia masal, 854
Alergia polinica, 854
Help Your Doctor to Help You, 1338
Synopsis of, 933
Alvarado, C A, Tratamiento del paludismo, 766
Alvarez, W C, editor, Help Your Doctor—
series, 1338
Amatruda, C. S, Developmental Diagnosis, 259
America's Housekeeping Book, 260
Nutrition Primer: What to Eat and Why,
417

American Newspaper Reporting of Science News, 765

765
American Medical Association, United States of America, Appellants, cs., 259
American Public Health Association, Housing for Health, 566
American Red Cross, Clara Barton, 1420

American Youth Commission, Youth and the Future, 1523 Anatomy, Applied Neuroanatomy, 933 Anderson, G. W., Communicable Disease Con-trol, 677

Anderson, O. D., Long Term Study of Experi-mental Neurosis in Sheep and Dog. 1168 Anderson, W., Early Treatment of War Wounds,

492 Andes, J. E., Synopsis of Applied Pathological Chemistry, 92 Anello, V. J., La filactotransfusión en pediatría, 766

Anemia, Tratamiento moderno de las anemias, 1024
Anesthesia, Analgesia obstétrica, 92
Anestésia raquidea con percaina en cirugía ginecológica, 766
Animals, Long Term Study of Experimental Neurosis in, 1168
Ankle, Their Injuries, Diseases, Deformities and Disabilities in Military Practice, 415
Ainstein, M. G... Communicable Disease Contol, 677
Atteries, cotonary, A insuficiência coronária

nteries, colonary, A insuficiência coronária (estudo semiológico), 92 Enfermedades de las arterias periféricas, 1419

Arthitits, Die Goldbehandlung, 677 in Modern Practice, 260 Astiagalus, Lessones traumáticas del astrágalo,

Microbe's Challenge, 180
Balley, H, editor, Surgery of Modein Warfare,
931

Ballinger, J. R., Medico-Legal Law Brief, 492 Barber, H. W., Medical Diseases of War, 335 Barton, Clana, Daughter of Destiny, 1420 Bejarano, J., Alimentación y nutrición en Co-lombia, 92

lombia, 92
Bibliography, Index-Catalogue, 1024
Blochemistry, Practical Methods in, 180
Blair, V. P., Cancer of Face and Mouth, 179
Blindness, National Society for Prevention of,
Eye Hazards in Industry, 1023
Blood Bath and Technique and Therapeutics of
Transfusion, 853
Clinteal Hematology, 1524
Die Grosse und Form der roten Blutkorperchen, 180
Discases of the Blood and Atlas of Hematology, 180
Discorders in Children, 765
La filacto transfusion en pediatria, 766

La filacto transfusión en pediatria, 766 Cher cerebrale Zirkulationsstorungen, 933 Boas. E. P., Treatment of the Patient Past Fifty, 931

Uper cereotate Zirkinatonistoringen, 933
Boas. E. P., Treatment of the Patient Past
Fifty, 931
Body Mechanics in Health and Disease, 766
Weight Reduction Diet and Dishes, 767
Bone Marrow, Sternal Puncture Method of
Clinical and Cytological Investigation, 932
Boston, L. N., Xanthoma and other Dyslipoldoses, 1262
Bozzola, J. A., Aleigia polinica, 854
Bradford, F. K., Intervertebral Disc, 260
Brain, Eagleton's Index and Abstracts of Literature, 1167
Postnatal Development of Human Cerebral
Cortex, 1420
Uber cerebrale Zirkulationsstorungen, 933
Broman, T., Uber corebrale Zirkulationsstorungen, 933
Broman, T., Uber corebrale Zirkulationsstorungen, 933
Bromospirochetosis, Bronco-espiroquetosis de
Castellani, 766
Brown, L. T., Body Mechanics in Health and
Disease, 766
Budin, H. A., Principles and Practice of Orthodigita, 851
Burke, E. T., Venereal Diseases, 1168
Byars, L. T., Cancer of Face and Mouth, 179
Cahn, L. R., Pathology of Oral Cavity, 1024
Calcagno, J. R., Desarrollo del sistema de conducción atrio-ventricular, 416
Caldwell, J. A., Manual of Treatment of Fractures, 415
Cameron, D. E., Objective and Experimental
Psychiatry, 853

Cancer, La lucha contra el cancer en la República Argentina, 766 of Face and Mouth: Diagnosis, Treatment, Surfical Repair, 179
Capillaries, Uber cerebrale Zirkulationsstorungen, 933
Carden, G, Art and Science of Nutrition, 933
Castration, Über Grundumsatz und Sevualhormone nach Kastration, 1261
Castro Villagrana, J, Entre cirujanos y hospitales, 417
Cadel, A. E, sub-editor, Hospitals Year-Book, 1167
Charlin, C C, Lecciones cirileas de medicina

1167
Charlin, C. C., Lecciones clínicas de medicina oftalmológica, 417
Chemistry See also Blochemistry
Chemical Analysis Chromatographic Adsorption Analysis, 1023
Manufacture of Cosmetics and, 766
Organic Medicinal Products, 416
Synopsis of Applied Pathological Chemistry, 92
Children See also Inc.

Children. See also Infants; Pediatrics
Blood Disorders in, 765
Deformity in Childhood, Primer on Prevention, 854
Developmental Diagnosis. Normal and Abnormal Child Development, 259
Chinese Lessons to Western Medicine, 1262
di Cló, A. V., Enfermedades de las arterias periféricas, 1419
Clapesattle, H. B., Doctors Mayo, 677
Clavton, E. E., Weight Reduction Diet and Dishes, 767
Clendening, L., Source Book of Medical History, 1420

Climate and Man: 1941 Yearbook of Agricul-ture, 765 Our Climate, 1338 Cluver, E. H. Training and Efficiency, 491 Coal Miners, Health and Working Environment,

1023
Collits, Help Your Dector to Help You, 1338
Color Blindness, New Test for Detection of, Color Bl

1168
Communicable Disease Control, 677
Community Hyglene, 767
Conel, J. L. Postnatal Development of Human
Cerebral Cortex, 1420
Cooper, L. F. Nutrition in Health and Disease,
417

417
Cosmetics, Chemistry and Manufacture of, 766
Dakin F, Simplified Nursing, 933
Dandy, W E, Orbital Tumors, 92
DeBakey, M, Blood Bank and Technique and
Therapeutics of Transfusions, 853
Deformity in Childhood, Primer on Prevention,
82.4

Deformity In Childhood, Primer on Prevention, de Jongh, T W, Training and Efficiency, 491
Delaware, Our Climate, 1338
del Sel, J M, Lesiones traumáticas del astrágalo, 766
Dementía Precox, O método de Meduna em esquizofrenicos cronicos, 417
de Navarre, M G, Chemistry and Manufacture of Cosmetics, 766
Dentistry, Prevention of Malocclusion, 1338
Dermatology, Common Skin Diseases, 1338
Devter, L, Precedamptic and Eclamptic Tovemia of Pregnancy, 335
Diabetes Mellitus, 932
Dias, C, B, A Insuficiencia coronária (estudo semiológico), 92
Dicchmann, W J, Tovemias of Pregnancy, 1167
Diet See also Nutrition
Weight Reduction, 767
Digestion, Las funciones digestivas en el organismo tuberculoso, 492
Disability, Standard Bodyparts Adjustment Guide, 1167
Disease See also Pathology; Therapeutics
Medical Diseases of War, 335
Dislocation, Congenital Dislocation of the Hip Joint, 565
Dogs, Long Term Study of Experimental Neurosis, 1168

Joint, 3013 Dogs, Long Term Study of Experimental Neuro-sis, 1168 Dunn, B, I'm Gonna Be a Father! 767 Eagleton, W P, Index and Abstracts of Litera-ture on Progress in Intracrantal Lesions,

Ear, Diseases of, 1420
Eagleton's Index and Abstracts, 1167
Eaton, A. G., Synopsis of Applied Pathological Chemistry, 92
Eberson, F., Microbe's Challenge, 180
Eclampsia, Precelamptic and Eclamptic Toxemia of Prepancy, 333
Efficiency, Training and Efficiency, 491
Eggleston, C., Essentials of Prescription Writing, 1338

Engleston, C., Essentials of Prescription Writing, 1338
Electrocardiography See Heart
Emergency Medical Services Instructions, Medical Services Instructions, Medical Services Instructions, Medical Treatment and Special Centres, 767
Emerson, H., Administrative Medicine, 767
Emdocarditis, Subacute Bacterial, 1261
Endocrinology, Endocrinologia clinica, 415
Gynecology and Female Endocrinology, 416
Enzymology, Advances in, and Related Subjects, 1024
Enliepsy and Cerebral Localization, 335
Erickson, T. C., Epilepsy and Cerebral Localization, 337
Essen-Mölier, E., Psychiatrische Untersuchungen an einer Serle von Zwifflingen, 932

European War: See War
Extremities, Roenigen Diagnosis of, 336
Eyes: See Ophthalmology
Face, Cancer of, Diagnosis, Treatment, Surgical
Repair, 179
Father, I'm Gonna Re a Father! 767
Fees, Standard Bodyparts Adjustment Guide,
1167

Fau. Fees, 5. 1167

1167
Ferguson, A. B., Roentgen Diagnosis of Extermities and Spine, 336
Filin, R. H., Soft Corl Miners' Health and Working Environment, 1023
Food: See Diet, Nutrition
Foot and Ankle: Injuries, Diseases, Deformities and Disabilities: Military Practice, 415
Fractures, Manual of, 415
Clinical Guide to Civil and Military Practice, 565

565
Frampton, M. E., La educación y el cuidado de los excepcionales, 1524
Frauchiger, E., Die Nervenkrankheiten des Rindes, 92
Freeman, Walter W., Nanthoma and other Dys-lipoidoses, 1262
Friberg, S., Low Back and Sciatic Pain Caused by Intervertebral Disc Herniation, 851
Friedberg, C. K., Subacute Baterial Endocarditis, 1261
Fromme, A., editor, Medizinische Praxis, 566

Fromme, A, editor, Medizinische Praxis, 566 Gage, S H, Microscope, 766 Gallbladder, Help Your Doctor to Help You,

Gage, S. H., Microscope, 766
Gallbladder, Help Your Doctor to Help You, 1238
Geiger, J. C., editor, 1941 Year Book of Public Health, 1338
Gerling, C. J., Complete Weight Reducer, 189
Gessell, A., Developmental Diagnosis: Normal and Abnormal Child Development, 259
Goedvolk, C., Training and Emiclency, 491
Golter, toxic, El factor emocional en la etiopatogenia de la enfermedad de Basedon, 91
Goldbehandiung der chronischen Arthrilis, 677
Goldmann, F., Prepayment Plans for Medical Care, 1324
Goldthwalt, J. E., Body Mechanics in Health and Disease, 766
Gomes, J. M., Tratamento da lepra à luz de novas idélas, 491
Gould, A. C., Community Hyglene, 767
Gray, G. W., Advancing Front of Medicine, 678
Gregg, A., Futherance of Medical Research, 1419
Grote, I. R., editor, Medizinische Praxis, 566
Grove, R. C., Sinus, 417
Gynecology and Female Endocrinology, 416
Semiologia do ovario, 1262
Halt, I. S., Diseases of the Nose, Throat and Ear, 1420
Hamilton, S. W., Study of Public Mental Hopitals of U. S., 1937-39, 416
Handicapped, La educación y el cuidado de los excepcionales, 1524
Hansen, E. H., Uber Grundumsatz und Sexualhormone nach Kastration, 1201
Hartony, W. H., Chemistry of Organic Medicinal Products, 416
Hartyel, W. C., Insect Pests, 259
Hawley, E. E., Art and Science of Nutrition, 933
Hayakawa, S. I., Language in Action, 1337
Health: See also Hyglene

18419; E. E., Art and Science of Muthida, 933
Hayakawa, S. I., Language in Action, 1337
Health: See also Hygienc
Account of Tuche Months of Health Defense,
City of New York for 1940, 565
Administrative Medicine, 767
Housing for Health American Public Health
Association committee, 566
1941 Year Book of Public Health, 1338
officer, Communicable Disease Control, 677
resorts, Aguas curativas y lugares de recreo
de México, 1338
Secret of Better Health, 566
Heart, Cardiac Clinics A Mayo Clinic Monograph, 417
conduction, Desarrollo del sistema de conducción atrio-ventricular, 416
Electrocardiographic interpretation, 678
Electrocardiography Including an Atlas, 678
Surgery of, 179
Hally News Poettormseries, 1338

Electrocardiography Including an Atlas, 678
Surgery of, 179
Help Your Doctor—series, 1338
Hematology See Blood
Hernandez, R., Applied Neuroanatomy. Spinal
Cord, 933
Hernherg, C. A. Die Grosse und Form der roten
Bluthorperchen, 180
Hess, J. H., Premature Infant, Its Medical and
Nursing Care, 1420
Hill, H., Insect Pests, 259
Hip, Congenital Dislocation of, Closed Reduction
and Arthrographic Studies, 563
Hirsch, E. W., See Life in Habylonia, 117
Hofmann, W., Die Nervenkrankheiten des Rirdes,

Holmes, H. N. Out of the Test Tube, 566
Holmes, H. N. Out of the Test Tube, 566
Hooker, S. B., editor, 1941. Year Book of
Pathology and Immunology, 1524
Hospital Ballads, 1168
Entire cirujanos y hospitales, 417
Mental Hospital Survey Committee, report, 416
Year-Book, 1941, 1167
Housing for Health, 565
Hurst, A., Medical Diseases of War, 235
Hygiene See also Health
Community Hygiene, 767
Ffictive Living, 492

BOOK NOTICES—Continued,
Ilgenfritz, H. C., Synopsis of Preparation and
After-Care of Surgical Patients, 1420
I'm Gonna Be a Father! 767
Immunology, 1941 Year Book of, 1524
Index-Catalogue, 1024
Industry, Essentials of Occupational Diseases,
336
Eve Hazards in 1022

Industry, Essentials of Occupational Diseases, 336

Bye Hazards in, 1023
Neumoconiosis sileosis pulmonar, 766
Soft Coal Miners' Health and Working En vironment, 1023
Standard Bodyparts Adjustment Guide, 1167
Infants. See also Children, Pediatrics
Nutrition, Textbook of Infant Feeding 566
You Too Can Have a Baby (A Plan for Parenthood), 1167
Premature Infant. Its Medical and Nursing Care, 1420
Insect Pests, 259
Institute of General Semantics, 1337
Insurance Statistical Service, Standard Bodyparts Adjustment Guide 1167
Jeans, P. C, reviser, Infant Nutrition (Marriott's), 566
Jeakins, G. L., Chemistry of Organic Medicinal Products, 416
Jokl, E, Training and Efficiency, 491
Kagan, S. R., Leaders of Medicine, 492
Kahn, F, Our Sev Life, 767
Kaplan, F. comp., Nobel Prize Winners 260
Karsner, H. T., editor, 1941 Year Book of Pathology and Immunology, 1524
Katz, L. N. Electrocardiographic Interpreta Katz, L N Atlas, 678

Exercises in Electrocardiographic Interpreta

tion, 678
Keller, F. E , Hospital Ballads, 1168
Kemp, J. E , Modern Treatment of Syphilis, 91

Kempf, G. A., Study of the Public Mental Hospitals of the United States 1937-39, 416
Kenny, E., Treatment of Infantlle Paralysis in Acute Stage (Sister Kenny's method), 179, [Compere] 918—C
Kilddffe, R. A., Blood Bank and Technique and Therapeutics of Transfusions, 853
King, E. S. J., Surgery of the Heart, 179
Koch, F. C., Practical Methods in Biochemistry, 180

180
Korenberg, M., Diabetes Mellitus, 932
Korzybski, A., Science and Sanity, 1337
Kracke, R. R., Diseases of the Blood and Atlas
of Hematology, 180
Kriegibaum, H., American Newspaper Reporting of Science News, 765
Krusen, F. H., Physical Medicine, 677
Kugelmass, I. N., Blood Disorders in Children,
765

Kuhns, J. G, Arthritis in Modern Practice,

260
Body Mechanics in Health and Disease, 766
Laboratory diagnosis, Synopsis of Applied Pathological Chemistry, 92
Instructions in Laboratory Work in Bacteriology, 417
Lachmann, A., Hypoparathyroidism in Denmark,

91
Lahej Clinic, Boston, Surgical Practice, 1024
Language Habits in Human Affairs, 1337
in Action, 1337
Lee, I. J. Language Habits in Human Affairs, 1337
Leen, I., Analgesia obstétrica, 92
Leprosy, Further Therapeutic Tests with an Anti-Leprosy Serum, 335
Short Account of Anti-Leprosy Serum and Its
Therapeutic Value, 336
Tratamento da lepra à luz de novas idénas, 491

491
Lewin, P, Foot and Ankle, 415
Libman, E, Subacute Bacterial Endocarditis,
1261

1261
Lipid, Xanthoma and Other Dyslipoidosts, 1262
Living, Effective, 402
Locatelli, V H, La lucha contra el cancer en
la Republica Argentina, 766
Lundeen, E. C., Premature Infant Its Medical
and Nursing Care, 1420
Lymphatics, Diseases of, of the Lower Extremity,
180

McCollum, C. H., Phils and Proverbs An Auto-biography, 767 MacDermot, H. E., Maude Abbott A. Memoir,

1420
Machado, J. E., Broncho-espiroquetosis de Castellani, 766
McHose, E., Effective Living, 492
Malngot, R., Technique of Gastric Operations,
1524
Malnta Technique del polydismo, 766

Malaria, Tratamiento del puludismo, 766
Malaria, Tratamiento del puludismo, 766
Malpractice suits, Medico-Legal Law Brief in
Relation to, 492
Marchese, S J., Neumoconiosis, 766
Marrlott, W McK., Infant Nutrition, 566
Marpland, Our Climate, 1338
Mayer, C F., Index-Catalogue, 1024
Mayo Clinic Monograph. Cardiac Clinics, 417
Doctors Mayo, 677
Mazza, H L, Anestésia raquidea con percaina
en cirugia ginecológica, 766
Medical Centers, Entre cirujanos y hospitales,
417

Medical History, Leaders of Medicine, 492 Clara Barton Daughter of Destiny, 1420 100 Years of Medicine in Minnesota, 1523

Source Book, 1420
Medical Jurisprudence, United States of America, Appellants, 25 American Medical Association, 259

ica, Appeliants, 15 American Medical Association, 259
Medicolegal Law Brief, 492
Medical Service, Prepayment Plans, 1524
Medicine, Advancing Front of, 678
Chinese Lessons to Western Medicine, 1262
Leaders of Medicine, 492
March of Medicine, 492
Medico Legal Law Brief, 492
Mental Defectives, Uber Grundumsatz und Sevualhormone nich Kastration, 1261
Mental Hospital Survey Committee report. Public Mental Hospitals, 416
Mexico, Aguas curativas y lugares de recreo de Mexico, 1338
Microslogy See Bacteriology
Microscope, 766
Middle Age, Treatment of Patient Past Fifty, 931
Migraine, Help Your Doctor to Help You, 1338

Middle Age, Treatment of Patient Past Fifty, 931
Migraine, Help Your Doctor to Help You, 1338
Miners, Soft Coal Miners' Health and Working Environment, 1023
Minnesota State Medical Association, 100 Years of Medicine, 1523
Mitchell, H S, Nutrition in Health and Disease, 417
Moncrieft, A, editor, Textbook on Nursing and Diseases of Sick Children for Nurses, 853
Moore, J E, Modern Treatment of Syphilis 91
Moore, S, Cancer of Face and Mouth, 179
Morgan, C, La educación y el cuidado de los excepcionales, 1524
Mouth, Cancer of, 179
Operative Oral Surgery, 1024
Pathology of Oral Cavity, 1024
Muller, H, Tratamlento moderno de las anemias, 1024
National Society for the Prevention of Blindness, Eye Hazards in Industry, 1023
Needham, J G, About Ourselves, 678
Nervous System, Autonomic, 1168
Diseases of, 853
Neurology, Die Nervenkrankheiten des Rindes, 92
Neurology, Den Term Study of, in Sheep and

Yeurosis, Long Term Study of, in Sheep and Dog with Nine Case Histories, 1168 New York, Account of Twelve Months of Health Defense, 565 Academy of Medicine, March of Medicine, 1592

Academy of Medicine, March of Medicine, 1523

Herald Tribune Home Institute, America's Housekeeping Book, 260

Newspaper, American Newspaper Reporting of Science News, 765

Nobel Prize Winners, 260

Nord, F F, editor, Advances in Enzymology and Related Subjects, 1024

Nose, Diseases of, 1420

Eagleton's Index and Abstracts of Literature, 1167

Nord, E. Gynecology and Female Endocrypol-

Eagleton's Index and Abstracts of Literature, 1167
Novak, E., Gynecology and Female Endocrinology, 416
Nursing, Simplified, 933
Tevtbook on, and Diseases of Sick Children for Nurses, 853
Nutrition See also Diet
Alimentación y nutrición en Colombia, 92
Art and Science of, 933
Der Energlehrushalt unter Einwirkung von Aminosauren, 931
In Health and Disease, 417
Infant Nutrition, 566
Obesity, Complete Weight Reducer, 180
Weight Reduction Diet and Dishes, 767
Obstetrics, Analgesia obstétrica, 92
Occupational Disease: See Industry
Cehme, C., Der Energiehaushalt unter Einwirkung van Aminosauren bei verschiedener Ernahrung, 931
Ophthalmology, Eye Hazards in Industry, 1023
Lecciones cilnicas de medicina oftalmológica, 417

417
ew Test for Detection of Color Blindness, New

1168
Orbital Tumors' Results Following Trans cranial Operative Attack, 92
Retina Anatomy and Histology, 1337
Orbit, Tumors Results Following Transcranial Operative Attack, 92
Orr, H W., Wounds and Fractures' Civil and Military Practice, 565
Orthodigita, Principles and Practice of, 954
Orthopedics' See also Fractures
Body Mechanics in Health and Disease, 766
Foot and Ankle, 415
Olitis Media, Beitrage zur Röntgendiagnostik, 336
Otorhinolaryngology, Diseases of Nose Throat

336
Otorhinolaryngology, Diseases of Nose Throat and Ear, 1420
Out of the Test Tube, 566
Ovary, Semiologia do ovário, 1262
Oxford War Manual, Early Treatment of War Wounds, 492
Parathyrold, Hypoparathyroldism in Denmark,

Parmenter, R., Long Term Study of the Experi-mental Neurosis in the Sheep and Dog, 1168

Paternity, I'm Gonna Be a Father! 767
Pathology See also Disease
1941 Year Book of, 1524
of Oral Cavity, 1024
Paul, J. R., editor, Rheumatic Fever in New
Haven, 933
Pediatrics See also Children, Infants
La flacto transfus

Haven, 933
Pediatrics See also Children, Infants
La filacto transfusión, 766
Textbook on Nursing and Diseases of Sick Children, 853
Peiping Union Medical College, Chinese Lessons to Western Medicine 1262
Penfiled, W., Epilepsy and Cerebral Localization, 335
Texted Park La Symposis of Propagation and

tion, 335
Penick, R. M., Jr., Synopsis of Preparation and After-Care of Surgical Patients 1120
Peptic Ulcer, Help Your Doctor to Help 1338
Perrusi, L. C., El factor emoclonal en la etio patogenia de la enfermedad de Basedow, 91
Pests, Insect Pests, 259
Petters, H., Aguas curativas y lugares de recerco de Mexico, 1338
Phylactotransfusion, La filactotransfusion en pediatra, 766

créo de Mexico, 1338
Phylactotransfusion, La filactotransfusion en pediatria, 766
Physical Medicine Body Mechanics in Health and Disease, 766
Employment of Physical Agents for Diagnosis and Therapy, 677
Physicians, Biographical Sketches of Outstand ing American and European Physicians, 492
Doctors Mayo, 677
Maude Abbott A Memoir, 1420
Pills and Proverbs Autobiography of Charles H McCollum, 767
Pills and Proverbs Autobiography of Charles H McCollum, 767
Pilns and Proverbs Autobiography of Charles H McCollum, 767
Piney, A, Sternal Puncture, 932
Pilnto Viégas, A, Endocrinologia clinica 415
Pneumoconiosis, Neumoconiosis, silicosis pulmonar, 766
Poems, Hospital Ballads, 1168
Pollomyelitis, Treatment in Acute Stage (Sister Kenny's Method), 179, [Compere] 918—C
Polyak, S L, Retina, 1337
Pregnancy, Preeclamptic and Eclamptic Toxemia of, 335
Clinical Roenigenology of 1524
Toxemias of Pregnancy, 1167
Premature Infant, Its Medical and Nursing

Sciatica, Low Back and Sciatic Pain Caused by Intervertebral Disc Herniation, 854

Intervertebral Disc Hernlation, 854
Science, American Newspaper Reporting of Science, New York
Out of the Test Tube, 566
Science and Sanity, 1337
Semantics, Introduction to, 1337
Sense, E, America's Nutrition Primer What to Eat and Why, 417
Severin, E, Contribution to Knowledge of Congenital Dislocation of Hip Joint, 565
Sev Life in Babylonia, 417
Our Sev Life A Guide & Counsellor 767
Shands, A R, Jr, Primer on Prevention of Deformity in Childhood, 854
Sheep, Long Term Study of the Experimental Neurols in, 1168
Silveira, A, O metodo de Meduna em esquizofrences cronicos, 417

Sinus, 417
Skin Diseases See Dermatology
Smiley, D. F., Community Hagiene, 767
Smithwick, R. H., Autonomic Nervous System,

Snapper, I. Chinese Lessons to Western Medi-cine, 12^{c2} Snow, W., Clinical Roentgenology of Pregnancy, 1524

BOOK NOTICES—Continued
South African Institute for Medical Research,
Training and Efficiency, 491
Spencer, P. G., Prevention of Malocclusion,
1338

Spinal Cord, Applied Neuroanatomy, 933
Spine, Intervertebral Disc . . . Rupture of
Annulus Fibrosus with Herniation of Nucleus Pulposus, 260
Low Back and Sciatic Pain Caused by Intervertebral Disc Herniation, 854
Roentgen Diagnosis of, 336
Spuring, R G, Intervertebral Disc, 260
Steinbrocker, O, Arthritis in Modern Practice, 260

Steinbrocker, O', Arthritis in Modern Practice, 260
Sternum, Puncture: Method of Clinical and Cytological Investigation, 932
Stitt's Diagnosis, Pievention and Treatment of Tropical Diseases, 1523
Stokes, J, Jr. Xanthoma and other Dyslipological Steepers, 1523
Stokes, J, Jr. Santhoma and other Dyslipological Strain, Hearth of Gastric Operations, 1524
Strain, H. H., Chemical Analysis: Chromato graphic Adsorption Analysis, 1023
Strong, R. P., Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, 1523
Sundelin, F. Die Goldbehandlung der chronischen Arthritis, 677
Sunderman, F. W., Nanthoma and other Dyslipoldoses, 1262
Surgeons, Doctors Mayo, 677
Surgery of the Heart, 179
of Modern Warfare, 931
Operative Oral Surgery, 1024
Orbital Tumors, Transcramal Operative Attack, 92
Surgical Practice of Labey Clinic, Boston, 1024
Synopsis of Preparation and After Care of Patients, 1429

Surgleal Practice of Labey Clinic, Boston, 1024
Synopsis of Preparation and After Care of Patients, 1420
Technique of Gastric Operations 1524
Swaim, I. T., Body Mechanics in Health and Disease, 766
Synhilis, Modern Treatment of, 91
Venereal Diseases, 1168
Tabanera, J. A., Las funciones digestivas en el organismo tuberculoso, 492
Tecth: See Dentistry
Terry Lectures, Furtherance of Medical Research, 1419
Test Tube, Out of the Test Tube, 566
Therapeutics: See also Physical Medicine
Help Your Doctor—series 1338
Treatment of the Patient Past Fifty, 931
Thompson, E. M., Simplified Nursing, 933
Throat. Diseases of, 1420
Toes, Principles and Practice of Orthodigita, 854
Training and Efficiency, 491
Treatment See Therapeutics
Tropical Diseases, Stitt's Diagnosis, Prevention and Treatment, 1523
Tuberculosis, Las funciones digestivas en el organismo tuberculoso, 492
Story of Clinical Pulmonary Tuberculosis, 1261
Tumors, Orbital Tumors Transcranial Operative Attack, 92

Story of Clinical Pulmonary Tuberculosis, 1261
Tumors, Orbital Tumors Transcranial Operative Attack, 92
Turner, C. D. Effective Living, 492
Twentieth Century Fund, Twelve Years' Review, Annual Report 1939 and 1940, 336
Twins, Psychiatrische Untersuchungen an einer Serie von Zwilingen, 932
United States of America, Appellants, vs. American Medical Association, Appellees, 259
University of California, Instructions in Laboratory Work in Bacteriology, 417
Vagina smear method (Shorr), Semiologia do ovarlo, 1262
Veins, Diseases of Lower Extremity, 180
Venercal Diseases, 1168
Verovitz, C. H., Diseases of the Veins and Lymphatics of the Lower Extremity, 180
Veterinary Medicine, Die Nervenkrankheiten des Rindes, 92
Urus Diseases, Medizinische Pravis, 566

Rindes, 92 Virus Diseases, Medizinische Pravis, 566 Vitamin A, "Alfon." Tratamento da lepra 1 luz de Lovas Idélas, 491 Walshe, F. M. R., Diseases of Nervous System,

853 r. Emergency Medical Services Instructions,

War, Emergency Medical Services Institutions, 767
Medical Diseases of 335
Surgery of Modern Warfare, 931
Wounds and Fractures, 565
Wounds, Laris Treatment Oxford War Manual, 492
Williams, B. C. Clara Barton Daughter of Destiny, 1420
Warnekros, K., editor, Medizinische Praxis, 566
Weeks, J. R., Our Climate, 1338
Wefdman, F. D., Nanthoma and Other Dyslipoldoses, 1262
Weight Reducer, Complete, 180
Weisman, A. I. You Too Can Have a Baby
(A Plan for Farenthood), 1167
Weiss, S., Precel-imptic and Eclamptic Toxemia of Pregnancy, 335
Wein, S., Belträge zur Röntgendiagnostik der Otitis media, 336
Werkman, C. H., Advances in Enzymology and Related Subjects, 1024
White, J. C., Autonomic Nervous System, 1168
Willius, F. A., Cardiac Clinics: Mayo Clinic Monograph, 417

Wiltberger, P. B., New Test for Detection of Colorblindness, 1168
Winter, L., Operative Oral Surgery, 1024
Wintrobe, M. M., Clinical Hematology, 1524
Wirtschrifter, Z. T., Diabetes Mellitus, 932
Workmen's Compensation, Standard Bodyparts
Adjustment Guide Disability Traductions,
Medical Fees, Statutory Digests, 1167
Wounds and Fractures, 565
War See War
Nanthoma and Other Dyslipoidoses, 1262
X-Rays. See Roentgenology
Year-Book Hospitals—1941, 1167
of Pathology and Immunology—1941, 1524
of Public Health—1941 1338
Jouth and the Future, 1523
Zimand, S., editor, Account of Twelve Months
of Health Defense, New York, 565
Zoology, About Ourselves, 678

CABBAGE, effect of heat on, nutrition in war time, 606—ab
CABLE Products and Oralene, Inc., 837—BI
CABOT, RICHARD, phonographic recordings of heatt sounds [White] 13:9—C
CAÇÃO, liver of Mustelus vulgaris rich in vitamın A. 159
CACODYLATES, use of, 936
CADMIUM in cooking utensils, warning against, 394

394
CAFFEINE: See Coffee
CAISSON workers, audiograms show hearing loss in, [Bunch] *589
CALCIFICATION See Bladder Bones Lungs
CALCIUM Gluconate, NNR, description, 1216
in Blood See Blood
in Urine See Urine
metabolism of lead in relation to, 142—E

m time see Urme metabolism of lead in relation to, 142—E olde (lime) burns of eye labbit peritoneum for, [Brown] 169—ab requirement and deficiency in food rationing diet France 475

diet France 475
retention in infants, effect of honey, [Knott]
S4-ab
Treatment See Tetany
CALCULI See Bile Ducts, Kidneys, Ureters,
Urinary System, etc
CALIFORNIA See also San Francisco
epidemic virus conjunctivitis (type of "pink
eye") 460-E
Heart Association 1378
Mosquito Control Association and equine
encephalomy elitis, 469
Physicians' Service 150-0S (analysis of
office, home and hospital calls) 654-0S
University of See University
CALLUSES See also Corns
on the heels, reddened pea sized nodules, 418
CALORIES, number required for heavy muscular work, [1y] *569, 1284-ab
predicted and observed in children obese
and nonobese, [Bruch] *1292
ration grants 1,225 calories a day, France, 475
requirement for children and adolescents 1155
CAMPHOR menthol, olly solutions for intratracheal injections 680
CAMPS Army See Wedicine and War
CANADIAN Army See World War II, European
Front
CANCER See also Adenocarcinoma, Choronic

CANCER See also Adenocarcinoma, Chorionic Carcinoma, under name of organ or region affected Medicolegal Abstracts at end of letter M

letter M

American Society for Control of (Women's Field Arms national assembly abandoned) 831, (election), 1310

campaign against, Chile, 397

control, 15 years of, Mass, 1379

development in acrodermatitis chronica atrophicans, [Pack & Wuester] *\$79

diagnosis, Increased acid phosphatase of blood serum, 855, [Ajamil] I166—ab

embryonal carcinoma, Aschheim-Zondek test in diagnosis [Twombly & others] *106

etiology, extragens, [Bennett & Te Linde] *1345

experimental procarcinogenic effect of blotin,

experimental procarcinogenic effect of biotin,

982—E
In infants, children and young adults in last
100 years, [Goldstein] 1014—nb
incidence in Texas, [WcDowell], 1518—ab
Institute, N Y, 154
Wassachusetts General Hospital facilities, 391
metastases, cervical, [Martin] 843—ab
metastases from bronchus, [White & others]

*862

metastases to skeleton from breast, effect of androgens and estrogens on serum calcium, [Farrow & Woodard] *339 nostrum Buck's Special Mixture—Washington Health Research Laboratories, 318—BI nostrum Esselstein's "Cancer Cure," 1513

nostrum Koch's, meets the law. 1373-E prize, Amerongen, to study relation to canned food. 63

recruits rejected for service with, 1146 Research: See also Cancer prize recearch at Vale (Childs Memorial Fund), 1307

research committee at U of Chicago, 238 research work at Harrard, 58

CANCER—Continued

ANCER—Continued
squamous cell, pseudoepitheliomatous hyperplasia, [Mercer & Obermajer] *139;
[Mezey] 664—C
Teaching Day at Syracuse U, 657
Treatment, Radiation: See Breist cancer freatment, radioactive phosphorus, [Kenney] 1014—ab
Treatment, Radium: See also Uterus cancer treatment, radium during European War, 242
Treatment, Roentgen: See also Thorax, cancer

treatment, roentgen high voltage, [Sims] 1014

-ab
CANTIES: See Hair, gray
CANNED food, Amerongen Prize to study relation to cancer, 63
foods, increase use of, England, 1383
CAPILLARIES See also Telanglectasin of fingers, spasms in, in workers on lasting machines, [Schrank] \$50-ab
CAPPS Prize See Prizes
CARBOHYDRATES See also Dextrose, Honey;
Sugar

Sugar dlet (high) in diabetes, [Greenc & Swanson]

*364 digestibility of, in bread, [Scalock] 815—16 intake not cause of acidosis, [Mirsky] *690 CARBOLIC ACID* See Phenoi CARBON See Charcoal CARBON DIOXIDE absorbent, Baralyme, [Kilborn] 483—ab m Blood See Blood resuscitation in advanced asphyala, [Birnbuum & others] *1364 solid, therapy of leprosy in Estonia, [Paldrok] 89—ab solidified "pencil" forming plastic applicators, [Carpenter] *286

sundined "pencil" forming plastic applicators, [Carpenter] *296 [CARBON DISULFIDE absorption (chronic) in viscose ravon workers, [Lewey] 484—th CARBON MONOXIDE, exposure of truffic officers, also in industry, [Sievers & others] *585

*1226
CARMAN Lecture See Lectures
CARNEGIE Corporation (grant to Marine Blologic Library) 392, (gift to Vale) 1230
CARNOY'S solution use in pilonidal sinus, [Koolstra] 1163—ab
CAROID, injection of ganglion (tumor) dangerous [Ke3] *516
CAROTENE in Blood See Blood
CAROTID SINUS reflex, syncope due to, [Weiss]

*533
rettey in coronary disease diagnosis, [Sigler] 1411—ab
CARPENTER, EMILE, 837—BI
CARRIERS See Disease carriers (cross refer-

CARHILIS See Disease carriers (cross recence)

CARROTING process of fur, mercurialism in felt hat industry, 54—E

CARTER'S Little Liver Pills, dermatitis from, [Conroy] *1449

CARTHAGE Selence Laboratories, 318—BI

CARTHAGE Selence Laboratories, 318—BI

CARTHAGE Selence Laboratories, 218—BI

CARTHAGE Selence Laboratories, 218—BI

CARTHAGE Selence Laboratories, 218—BI

CARVER, Lyell H, & Co. \$37—BI

CASE records maintenance of in hospitals approved for internship, 1492—OS

CASTRATION' See also Sterilization, Sexual amenorihea, estraidol benzoate and progesterone for, [Zondek] *707

anhydrohydroxyprosesterone after, [Werter] 116—ab

treatment of prostate concer by, \$75; [Ajaril] 1166—ab, (reply) [Smith] 1514—6

CASTRATION—Continued
urinary gonadotropins, hot flushes, etc. in
castrated male, 458—E
de CASTRO, ALOYSIO, honored, 63
CASTS, "airtight" plaster of paris, for gunshot
wounds and fractures, [Orr] 917—C
CASUALTY Statistics. See Accidents, World
War II War II

Hospitals; Station: See Medicine and the

War CATARACT, dinitrophenol, 568 familial and hereditary marriage advisable? 1421

senile, causes of, [de Ruyter] 756—ab CATAATONIA. See Dementia Precox CATHARTICS: See Constitution CATHETICRIZATION, use of deproteinated pancreatic tissue extract in, [Neptune] 487—ab CAUDA EQUINA lesions, myeloscopy in [Pool] 1413—ab

1413—ab
"CAUTION" statement for thiamine hydrochlor-

CAUTION" statement for thiamine hydrochlor-ide preparations, (Council decision), 617 CELIAC DISEASE, hypoproteinemia in nontron-ical sprue, [Oettel] 675—ab sprue relationship, Hurst on, 1234 treatment, inject human blood, [Wickstrom] 930—ab

930-ab CELLOPHANE tipped NIH swabs for pinworms.

treatment, inject numan blood, [Wickstrom] 930-ab
CLILOPHANE tipped NIH swabs for pinwoims, 93
CELLS: See Blood cells
Glant: See Arterlis
Squamous: See Cancer, squamous cell
CELLULITIS, treatment, sulfathiazole, reactions to readministering, [Lyons & Balberor] *956
CENSUS: See also Man Power; Population demographic, Brazil, 552
of physicians by A M. A, 1480—OS, 1486—OS
CENTENO, ALEIANDRO, death, 160
CENTRAL Council for Health Education publicity on droplet infection, 396
Institute for the Deaf, St. Louis, established by Dr. Goldstein, 182
Neuropsychiatric Hospital Association, 998
Society for Clinical Research, (abstract of proceedings), 1002; 1161; 1243; 1322, 1401
Surgical Association, 659
CEREAL Chemists, American Association of, awards Osborne Medal, 547
fortified with vitamin D, value of, Council report, 1469—OS
CEREBROSPINAL FLUID in diagnosis of intracranial tumors, [Bligaard] 490—ab
probable atypical acute [supphocytic choriomeningitis, 418
protens in acute pohomyelitis, 1025
sulfathiazole in, in meningitis treatment, [Lehman] 338
uric acid in, [Bautista dos Reis] 756—ab
Wassermann test reactivated in, [Felici] 412
—ab
CEREBROSPINAL MUNINGITIS See Meningitis cerebrosumal enidemic

CEREBROSPINAL MUNINGITIS. See Menin-

gitis, cerebrospinal epidemic CEREBROSPINAL SYPHILIS: See Neurosynhilis

CEREBRUM. See Brain

CEREBRUM. See Brain
CERTAND Products, Douche Shields, Applicators, Dia-Caps and Dia-Domes, 246—BI
CERVICAL Adenitis: See Lymphatic System
CERVIX uteri See Uterus
CESAREAN SECTION indications; classic, low
or extraperitoneal, [Cosgrove & Norton]
*201
mortality and and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec

mortality, early and late, [Falls] *204
CHANCROID treatment, sulfamilamide, [Vazquez Vega] 177—ab, [Guerra] 849—ab
treatment, sulfathiazole locally, [Robinson]

CHANDLER Prize See Prizes
CHARACTERISTICS See Perso
cal Characteristics See Personality, Physi

CHARCOAL, activated, as defense chemical against poison gas, 934
CHEDIAK Test for syphilis, 262
CHEMICAL Burns See under Burns elements, 88 isolated, 453—ab warfare course at Woman's Medical College,

CHEMISTRY, A. M. A. Council on, See American Medical Association
CHEMOTHERAPY: See Arsenicals, Sulfonamide Compounds, etc.
CHEST: See Thorax

CHECAGO: See also Institute of Medicine of Chicago

Chicago
area, medical defense measures in, 146
Emergency Medical Service, 539
Heart Association annual meeting, 547
Medical Society cooperates in manning casunity stations, 907
Tumor Institute buys home, 153
University of: See University
CHICKEN, origin of acute anterior poliomyelitis,
[Prefond] 490—ab
CHILBLAINS, 1264
CHILDBIRTH: See Labor
CHILDBEN: See also Adolescence; Families,
Infants, Maternity; Pediatrics; under names
of specific diseases
appetite and the child, 420
Child Development Clinic at Yale, 1230

CHILDREN—Continued

corneal opacities in, in Alaska, 338 delinquent and neglected, second national con-ference for protection of, 834

ference for protection of, 834
dependent indigent, Texas State Medical Association program for care, 57—08
dependent, medical aid for, N Y., 155
Emergency Cooperating Committee for, 393
Growth of See Growth
Hospitals for. See Hospitals
hypertrichosis in, 770
immunization against diphtheria and smallpox
by May 1 (Child Health Day), 658; 1220—E
immunization project, Pa, 1505
immunization survey of those under 10, Ind,
528

828
Nurseries (wartime) for: See World War II
physical fitness, grid technic, [Bruch] *1289
school, effects of different lunches on, 58
school, supply of milk to, England, 63
Southern Conference on Tomorrow's Children,

stature and weight, [Meredith] 251-ab

stature and weight, [Meredith] 251—ab throat abscess (acute) in, [Deering & Brennemann] *1171
U. S. Child Hygiene Bureau, (Dr. Baumgartner new director) 830
U. S. Children's Bureau, (Advisor) Committee meetings, report) 152—0S, (positions available) [Harvej] *1222, (medical practice in) 1377—0S

welfare, Chile, 159
welfare teaching day, Rochester, 1231
CHILE Servicio Nacional de Salubridad Pub-

weitare teaching day, Rochester, 1231
CHILE Servicio Nacional de Salubridad Publica, 160
CHILEAN Congress of Pediatrics, 243
CHILLING, role in rheumatism, 567
CHINA, Commonwealth Fund aids, 60
Famine Relief to be headed by Dr. Hume, 61
medical aid to, 1506
medical service on Burma Road, 542
CHINESE-JAPANESE WAR, injuries of genitournary organs in, [Nahauchi] 257—ab
CHIROPRACTOR See also Medicolegal Abstracts at end of letter M
Ilcense of Dr McAlpin revoked for practicing
with H E, Crum, 656
sentenced Edward F Jacobson, Minn, 239
state laws regarding, 1479—OS
theory of insurance rating, 381—E
U S Employees' Compensation Act and,
1478—08

-08

CHLORACETOPHENONE, CN, sensitivity to,

[Lewison] 248-C CHLORALOSE A, [Green] 119-ab CHLORETONE, inhalants in oily vehicles,

CHLORETONE, inhalants in oily vehicles, (Council report), 378
CHLORIDES See Choline chloride, Sodium chloride, etc
in Blood See Blood
in Urine See Urine
CHLORINE compounds to disinfect beverage glasses, etc. 981—E
CHLOROBUTANOL, inhalants in oily vehicles, (Council report), 378
dicHLOROETHYL, SULFIDE mustard gas (HS) sensitivity to, [Lewison] 248—C
decontamination of eyes after with hydrogen perovide, 1374

perovide, 1374 ENOL, oily solutions for intraracheal injections, 680 CHLOROPHYLL treatment of bronchiectasis, [Diamond & Van Loon] *776 CHLOROVINYL-DICHLOROARSINE (lewisite).

CHLOROVINYL-DICHLOROARSINE (lewisite), decontamination of eyes with hydrogen peroxide, 1374
CHLORO-ZOL, 246—BI
CHOCOLATE rationing, France, 474
CHOKED DISK See Nerves, optic
CHOLECYSTECTOMY See Gallbludder, excision
CHOLECYSTITIS See Gallbludder inflamma

CHOLEDOCHOLITHOTOMY: See Bile Ducts

CHOLEDOCHOLITHOTOMI: See Bine Ducts
calculi
CHOLERA, vaccination against (Circular Letter no 3), 385
CHOLESTEROL diet (low) in hepatic cirrhosis
and ascites, [Broun] 1403—ab
in Blood See Blood
CHOLESTEROSIS of gallbladder, [Arnell] 1016
__ab

CHOLINE See also Acetyl choline chloride in hepatic cirrhosis and ascites,
[Broun] 1403—ab

chloride in hepatic cirrhosis and ascites, [Broun] 1403—ab
CHONDROEPIPHYSITIS, juvenile osteochondral hypothyroidism, desiccated thyroid for, [Schaefer] 667—ab
CHONDROMALACIA, patellar, total extirpation of patella in, [Friberg] 490—ab
CHORDOMA, [Harvey] 848—ab
CHORDA minor, electroencephalogram in, [Gibbs] *216
CHORIOEPITHELIOMA: See Chorlonic Carel noma

CHORIOMENINGITIS diagnosis. complement

CHORIOMENINGITIS diagnosis, complement fixation test, [Casals] 257—46 lymphocytic, atvolted acute, 418 lymphocytic virus, mosquitoes transmit effect of temperature on, [Milzer] 1162—ab CHORION villi implants in oviducts, ovary and omentum, [Lazzrus] 1329—ab CHORIONIC CARCIVOMA diagnosis, Aschheim-Zondek test, [Twombly & others] *106, [Ten Seldam] 1336—ab

CHORIONIC GONADOTROPINS: See Gonado-

tropins
CHROMOSOME chemistry, 802—ab
CHRYSOTHERAPY: See Gold treatment (cross

CHRYSOTHERAPY: See Gold treatment (cross reference)
CICATRIX, shrinkage of conjunctiva in dyers,
[Bruchner] 1238—ab
CICARETS: See Tobacco
CINCINNATI; University of: See University
CINEMA: See Moving Pictures
CIRCULATION: See Blood
CIRCULATORY Disease See Cardiovascular
Disease

Disease

Disease
Failure: See Cardiovascular System
System: See Cardiovascular System
System: See Cardiovascular System
CIRRHOSIS: See Liver
CITIZENSHIP: See United States
Requirement: See under Licensure
CIVIL SERVICE: See also U. S. Civil Service
Positions: See Physicians, positions for;
United States Civil Service
state, Connecticut State Medical Society to
supervise examinations, 743
CIVIL WAR, Oliver Wendell Holmes address to
Harvard students in '61, [Oppenhelmer] 319
—C

CIVILIAN DEFENSE: See Medicine and the

CIVILIZATION, science as basis of, 1345-ab

CIVILIZATION, science as basis of, 1345—ab CLAPP'S Juntor Foods Brand Pineapple Orange Rice Pudding, \$19 CLARO Hair Remover, 246—BI CLAUDICATION, intermittent, from arterial spasm after walking, [Leary] 921—ab intermittent, periarterial sympathectomy for, [Ebhardt] 1260—ab intermittent, prognosis, [von Hasselbach] 674—ab CLAVICLE. See also Shoulder rhomboid depression, [Shulman] 86—ab CLAVICLE See Corns CLEANSING AGENTS. See Detergents; Sond CLEVELAND Health Museum anniversary, 155 Industrial Physicians Club, formed, 240 Lakeside Unit on active service, 541 CLIMACTERIC See also Menopause dermatoses of men after, testosterone olutment for, [Hollander] 1406—ab in aging men, 458—E

in aging men, 458—E
CLIMATE. See also Arctic; Tropics
best for those with abundant sputum or with
dry cough, 568
rheumatism and, 567

CLINICAL Conference: See Education, Medical graduate

CLINICAL Conference: See Education, Medical graduate
Laboratory, See Laboratories
Research, American Federation for, 1381
Research, Central Society for, (proceedings) 1002, 1161, 1243; 1322, 1101
CLINICS See also Dispensaries; Education, Medical, graduate
American Heart Association wants data on, [Duryce] 1317—C
In defense areas, federal legislation, 1176—OS
National Hospital for Speech Disorders, 711
occupational disease, [Kronenberg] 648—ab
of Child Development at Yale, 1230
rehabilitation, of handlcapped, with view to employment, Conn, 1307
CLIPS, silver role in spinal metastases of medulloblastoma, [Halpern] *803
CLORASEN. See Syphills treatment
CLUBFOOT. See Foot
CN. See Chloracetophenone
COAGULASE test for staphylococci, [Spink]
1234—ab

COAGULATION: See Blood congulation COAL OIL: See Kerosene COAL TAR: See also under specific coal tar

products

products
crude, treatment of chronic psoriasis, [Bigham] 926—ab
derivatives, photosensitization from, 769
derivatives, warning against, 907
COCCIDIOIDIN skin tests, results of, [Shelton]

*1187
COCCIDIOIDOSIS, epidemic, after field trip at Stanford, [Davis & others] *1182 in personnel at adation training centers, Calif commission investigating, 461 survey at Camp Roberts, California, [Shciton] *1186

COENZYME R vitamin H and blotin, (Syden-stricker & others] *1199 COFFEE in gout, 858

COITUS See also Birth Control, Impotence,

COITT'S See also Birth Control, Impotence, Spermatozoa during menstruation, pregnancy from, 119 headache, after, 338 number of exposures, pregnancy rate vs contraceptives, [Beech & Overton] *1018 number of exposures vs contraceptives, [Silv] *283

COLD See also Arcte; Chilling; Frostbite, Beech & Performance.

[Sitt] *283
OLD See also Arctic; Chilling; Frostblic,
Heat, Refrigerator
allergy (physical or psychic) 229—J;
applications effect on adynamic fleus [Bisgard & others] *117
crems as detergents, [Lanc & Blant] *807
effect on healing wounds, [Brooks] 811—ab
hemagglutination (spontaneous) in Raynaud's
syndrome [Beniaus] 489—ab

DIPHTHERIA—Continued
immunization (active and passive) of school
children, [Fulton] 1256—ab
immunization (active and pressive with antitoxin) of students, [Downie] 1015—ab
immunization (combined) with smallpox,
[Reh] 1335—ab
immunization (combined) with whooping
cough. New Jersey, 1308
immunization of Canadian air force, [Sellers] 170—ab immunization of children by May 1, 658, 1220—E in Germany, 1931 vs 1941, 1383 in Switzerland, 662 increase in, Illinois, 1378 infections, air borne, [Buchbinder] *726 mortality in large cities of U S in 1940, also those with no deaths, *714 Ramon's new formula for associated vaccine, 553 553
to\in, Limes Nul or Lo dose of, subminimal reactive dose, 856
DIRECTOR Belt, obesity nostrum, 837—BI
DIRECTORY See American Medical Directory
DIRT See Dust
Removal of: See Detergents
DISABLITY: See also Handicapped
Industrial: See Industrial Accidents, Workmen's Compensation rehabilitation of injured, England, 1154
DISEASE See also Death, Diagnosis. Epidemics; Health, Infectious Disease; Therapeutics, etc nrrier See Dysentery, Meningitis; Typhoid; Typhus chronic, basal metabolism in, [Stiles] 1247 Hazard: See Industrial Discases Rate See Vital Statistics, morbidity reportable, rheumatic fever, Arkansas 828 reportable; venereal disease in registrants, 1304
Sickness Insurance See Insurance, health
DISHES See Cooking and Eating Utensils
DISINFECTION. See also Antisepties, Germicides; Sterilization, Bacterial
of Air: See Air
of beverage glasses with chlorine, 981—E
DISLOCATION. See Atlas-Axis
DISPENSARIES: See also Chinics
military, [Darnall] *902
DISSECTION of executed criminals, Queen
Elizabeth issued statute permitting, 1170
DISTEMPER vaccine inoculation at U of California medical center, [Brown] 324—ab
virus, prophylaxis in influenza, [Sulkin] 1410
—ab ritis, prophylaxis in innucata, (Standar) fro-ab
DISTINGUISHED Service Medal See Prizes
"D-I-T," Acme Laboratory, 317—BI
DIURESIS, effect of vitamin C on, [Joao Marques] 1336—ab
diuretics to control edema in glomerulonephritis, 1525
oral mercurial diuretics in edema, [Borg]
1404—ab
DIZZINESS. See Vertigo
DOAK Co sun screen ointment for photosensitization from petroleum products, 769
DOCTORS See also Physicians, Medicolegal
Abstracts at end of letter M
"Doctors at Work"—audience check, 1220—E;
1473—OS

DOCTORS-Continued Doctors Musical Society of Brooklyn, 1308 Trade names beginning with "Dr" See under Doctors Musical Society of Brooklyn, 1308
Trade names beginning with "Dr" See under
surname concerned
DOGS See also Distemper
Eskimo, toxicity of liver of, 337, (reply)
[Sutton] 1020
gas gangrene in, [Dowdv] 86—ab
DOLANTIN or Dolantal for recurrent hiccup,
[Jessen] 674—ab
DOMESTIC SERVANTS, problem of syphilis
and genorrhen in maid, 680
DONATIONS See Foundations, Hospitals
DONNELLEY scholarship fund at Yale, 334—SS
DONORS See Blood Transfusion
'DOPA' amino acid metabolism in ischemic
kidner 899—E
DOPE, hazands in aircraft production, [Russell]
410—ab
DORF, Rose Dorf's Cosmetics, 399—BI
DOSAGE forms, multiple, accepted preparations
(Council decision) 617
subminimal reactive dose 856
DOUCHE Shields, Certane Products 246—BI
DR See Doctors
DRAFT, DRAFT, BOARD, See Medicine and DR See Doctors

DRAFT; DRAFT BOARD: See Medicine and
the War

DRAINAGE See under name of Organ or AINAGE See under name of Organ or Region affected Region affected
Intraventricular See Brain
Monaldi's Suction See Tuberculosis Pul
monary cavities
DRAM VTIST, Ibsen. great Nordic dramatist, was
a pharmacist 507—ab
DREFT sensitivity to, [Lane & Blank] *811,
*\$16, 1169
DRESSINGS See also Medical Supplies
Cruricast Bandage, 456
prevention of hospital infection of wounds,
committee report, 395, 1235
DRINKS See Beverages
DRIVERS See Automobiles
DROP, falling drop method for specific gravity P, falling drop method for specific gravity alinement chart, [Barbour & Hamilton DROPPER bottles, nose drop contamination in, [Compertz & Michael] *1287 DROPSY See Ascites, Edema DROPSY See Ascites, Edema
DRUGGISTS See Pharmacists
DRUGS See also Medical Supplies, Pharmacology, under names of specific drugs
Addiction to See Narcotics, under names
of specific drugs
combined to stimulate human colon, [Adler] Committee on, appointed at National Research Council conference 1298—E control of certain ones, joint committee to consider, Ohlahoma, 156 effect on intestinal pH 262 Eruptions See Arsphenamine, Cyverine, etc Federal Food, Drug and Cosmette Act: See under Federal Formulary See Formulary habit forming Federal Security Administrator designates, 659 Manufacturers See Pharmaceuticals metric vs English mensurements, [Anderson] 999—C
N. N. R. See American Medical Association and under names of specific products 1402--ab N R See American Medical Association and under names of specific products Patent Medicines See Nostrums

DRUGS-Continued Pharmacopelal: See Pharmacopela Proprietary. See Proprietaries registration and certification of, Mexico, 476 shortage of medicaments, France, 1133 supplies, consultants in, 540 terminology. Council consideration, 1466—08 U. S Food and Drug Administration: See Food diabetic dwarfs, [Boyd & others] *694
NES See also under names of specific dyes
as Methylthionine Chloride
cleatricial shrinkage of conjunctiva in dyers, [Bruckner] 1258—ab

3-die Treatment. See Burns, treatment
DYSINTERY See also Diarrinea
buillary, polybacteriophuge for, [Socsman]
326—ab bacillary, sulfaguanidine for, [Kirsner] 1402 -ab carriers, sulfaguanidine for, [Rantz & Kirby] *1268 *1268
carriers, thionol, phenothiazine, lodophthalein,
sulfaguanidine or sulfadiazine for, [Cutting
& others] *1447
Flevner, sulfaguanidine for, [Anderson]
325-nb 325—ab
Flevner, tellurite iron rosolic acid medium selective for, [Wilson] 325—ab in Germany, 1931 vs 1941, 1383 outbreak due to Salmoncila typhi murium, [Mosher] 1013—ab
DYSGERMINOMA, Aschhelm-Zondek test in diagnosis, [Twombly & others] *106
DYSPEPSIA See Indigestion
DYSPNEA See Asthma
DYSTROPHY See also Epiphyses
Muscular See also Myssibenia gravis muscular, vitamin E and alpha tocopherol for, [DeJong] 484—ab

## DEATHS —

A
Abbene, Marius Liborius, 161
Abrams, Irwin Isadore, 1316
Abrams, Isadore Irwin. See Abrams,
Irwin Isadore
Adams, Albert Franklin, 1239
Adams, James Luther, 1387
Alexander, Archibald Addison, 1385
Alexander, Archibald Addison, 162
Allen, George Brannan, 162
Allen, Joseph William, 1511
Anderson, Benjamin' Hooke, 1239
Anderson, George Charles, 916
Anderson, William De Lue, 1386
Andrew, Hemmn Bangs, 916
Argadine, John B, 1316
Arndt, Howard W, 1315
Arrants, William Hubert, 162
Arthur, William Elmo, 1387
Atkinson, Gordon T, 916
Atkinson, William H, 1157
Austin, Albert Elmer, 835
Austin, Charles S., 749
Avis, Woodburne Roszel, 997

Bagley, J B. 836
Balley, Thomas Sargent, 836
Balley, William Ofto, 161
Baker, Ida Belle See Page, Beshop, Arthur V, 1386
Belle Baker

Baler, Rollin Oliver, 1315
Baler, Walter English, 245
Baller, Charles Barber, 65
Baller, Charles Barber, 65
Baller, Charles Barber, 65
Ballard, Charles Barber, 65
Ballard, Howard Spaulding, 750
Ballard, Howard Spaulding, 750
Banks, Henry Lee, 916
Barclard, Alexander, Sr., 1315
Barber, Archie Wilson 162
Barber, Archie Wilson 162
Barber, Robert E. 135
Barber, Archie Wilson 162
Barnett, Robert T., 749
Barnett, Walter Cox, 749
Barnett, Michael Ryan, 836
Barton, Samuel Taylor, 245
Barta, Richard Vincent, 836
Barton, Samuel Taylor, 245
Barber, Frach, Holburt, 663
Barton, Samuel Taylor, 245
Back, Garder, George Willward, 916
Black, Alen Hanson 161
Blackoe, Ralph Waldo Emerson, 1511
Broadway, Rembert Erics, 916
Bool, J. Mills, 65
Bool J. Mills, 65
Bool J. Mills, 65
Bool J. Mills, 65
Bool, Gustavus G., 1316
Book, Charles Ross, 1316
Booth, Franh Hulburt, 663
Booth, Franh Hulburt, 663
Booth, Franh Hulburt, 663
Booth, Franh Hulburt, 663
Booth, Franh Hulburt, 663
Booth, Frank Hulburt, 663
Booth, Frank Hulburt, 663
Booth, Frank Hulburt, 663
Booth, Frank Hulburt, 663
Booth, Frank Hulburt, 663
Booth, Frank Hulburt, 663
Booth, Frank Hulburt, 663
Booth, William Gillinore, 1511
Beard, Guy Edward 162
Booth, Frank Hulburt, 663
Booth, William Gillinore, 1511
Beach, Dodge Felly, 750
Booth, William Gillinore, 1511
Brown, Friderick La Motte, 162
Booth, Frank Hulburt, 663
Booth, William Gillinore, 1511
Brown, Friderick La Motte, 162
Booth, William Richard, 1386
Booth, William Richard, 1386
Booth, William Richard, 1386
Booth, William Richard, 1386
Booth, William Richard, 1386
Brown, Arthur V, 916
Brown, Friderick La Motte, 162
Brown, Friderick La Motte, 162
Brown, Brown, Arthury N, 1856
Brown, Friderick La Motte, 162
Brown, Friderick La Motte, 162
Brown, Friderick La Motte, 162
Brown, Friderick La Motte, 162
Brown, Friderick La Motte, 162
Brown, Friderick La Motte, 162
Brown, Friderick La Motte, 162
Brown, Friderick La Motte, 162
Brown, Friderick La Motte, 162
Brown, Brown, Arthury N, 1856
Brown, Friderick La Motte, 162
Brown, Brown, Art

Davis, Muldah: See Hurst, Huldah
Davis
Davison, Charles, 398
Davison, David Henry, 64
Davison, Alexander, 245
Denn, Edward Francis, 244
Dean, James Thomas, 1387
Dean, John McHale, 915
Decker, William F. 1239
de Grosz, Emlle, 241
De Jenect, Warren Brodie, 1239
De Lancez, Charles Herman, 1315
De Lee, Joseph Bollvar, 1314
Deming, Robert Millard, 1156
Dennis, Glenn Kennedy, 836
Denton, Peter Price, 245
DeSilvan, George Richtmyer, 1316
Desloges, Anthony Hector See Desloges, Anthony Hector
Desloges, Anthony Hector, 245
de Tarnowsky, George de
Deutsch, Leopold, 1157
De Valln, Hugh, 749
Dickle, Perry, 1387
Doering, Raymond Edmund, 916
Donovan, Nellie Veronica, 1316
Dooley, Rufus L, 1157
Dorsett, James A., 161
Dougherty, James Francis, 245

Doughtle, Charles Wilson, 1385
Douglass, Thomas, 64
Dowler, Michael Albert, 836
Downey, Hugh James, 1156
Driscoll, Leo Francis, 1511
Droste, Arnold Theodore, 916
Droznialkewicz, Leo J, 1239
Drury, Alfred Jones, 1237
Drver, George Wing, 916
Dufty, James Joseph, 244
Duke, Henry Hunt, 161
Dukes, Charles Alfred, 996

G
Gaddie, William Robert, 1387
Gallmard, Paul Louis, 1511
Galbrath, John Hughes, 1510
Galbrath, John Hughes, 1510
Gallagher, Frank M, 1239
Garard, Justus Corbly, 1316
Gardner, James Stanles, 65
Gardner, Flonorose Lewis 554
Garland, Herbert Lee, 663
Garretson, William McYuulen
Gault, William Edward, 916
George, James Robert, 1511
Geyerman, Peter Thomas 997
Gibson, William Baher 835
Gilere, Eric Olonzo, 1315
Gilbert, A K, 836
Gilbert, A K, 836
Gilbert, Quinter Olen, 907
Gillam, George Joshua, 1315
Gillagple, Daniel Paul, 916
Gilmore, Eugene Leffler, 65
Gist, Lemuel Ira, 244
Goldenberg, Martin David 1316
Goldman, Stanley Frederick, 1315
Goldmark, Carl, 1510
Gomes, Joseph John, 836
Goodfriend Nathan, 1237
Goodwin, Harold Carl, 1385
Gorelick, Harry Sage, 1387

Goss, Arthur Vincent, 1314
Gotfredsen, Hans Peter, 1157
Gould, Chester Harlow, 1387
Grace, William Laughlin, 836
Grady, William Larle, 663
Graff James Brown, 554
Graham, Joseph Thompson, 65
Grant, Reginald Franklin, 750
Graves, Grace Allen, 836
Gray, Samuel Brown, 554
Green, Hiram Otto, 663
Green, Samuel William, 663
Green, Samuel William, 663
Greer, Charles A, 749
Grefory, Rollin Stephen 750
Griffin, Charles Mead 1387
Griffith, William Augustus, 1387
Griffith, William Augustus, 1387
Griffith, United Mills, 1239
Guid, David Frazer, 245
Gustetter, Albert Louis, 1238
Gwinn, Lawrence Miles, 65

Howard LeRoy Downey, 247 Howell, Hampton Plerson, 161 Hubenthal, John Calvin, 1510 Huddleston, Paul Milton, 245 Hudson, Arthur Thomas, 750 Hudson, C Curtis 1386 Huff, Scott M 1386 Huffaker Columbus, 1239

Hughes, Charles Terrel, 1238 Hughes Herman Clyde, 750 Hull, Charles Wilbur, 836 Hunter, Andrew, 1238 Hunter, Henry John, 1239 Hunter, Thomas Van, 1315 Hurst, Huldah Davis, 1238 Hutchuns, Frank Frazier, 1237 Hvde, Hartwell Blount, 63 Hvde, William Brown, 836

Iddings, Charles M., 1316 Ill, Edgar Alevander 1156 Ireland, George Irvine 1, Irwin, Henry Wilbur, 1385 Isaacs, Lewis Joel, 245

Jack, George Northrup, 997
Jacobs, Max William, 997
Jacobson, Harris Ainsworth, 247
Jaquish, Charles Joseph, 1238
Jarrett, Harry, 1239
Jaudon, Eugene Keene, 554
Jefferson, William Guss, 1157
Jenlins, Edward John, 750
Jennings, Casper Walker, 161
Jennings, Charles Green Rockwood, 1315
Jeude, Julius John, 750
Johnson, Allen, 64
Johnson, Charles Wilson 554
Johnson, Charles Wilson 554
Johnson, Ora Alexander, 1239
Johnson, Oscar, 750
Johnson, Oscar, 750
Johnson, Samuel Earle, 398, 1157
Johnson, Walter Albert, 245
Johnstone, Paul Alexander 65
Jones, Amos McKinnie, 1315
Jones, Augustus Monice, 836
Jones, Carl White, 749
Jones, Edwin H, 1511
Jones, Louise Tayler, 749
Jones, Louise Tayler, 749
Jones, Louise Tayler, 749
Jones, Rark Clyde, 1511
Justice, Robert Lee, 65

Kane, Clinton Austin 997
Keables, Haller Francis, 162
Kengy, Cyrus S, 65
Keathley, John R, 245
Kellum, Eugene LeRoy, 67
Kendall, Perry Arnold, 1386
Kenney, Frank W., 749
Kensinger, William Henry 162
Kerzman, Henry M, 65
Kessler, John Blair, 749
Ketcham, John Floyd A 1316
Ketchin, Samuel Cathcart, 749
Kilgore, Eugene Sterling, 398
Killeen, John Joseph, 1385
King, Charles Hayes, 12,38
Kingsbury, Dana W, 1386
Kinsley, William Ivanhoe, 1511
Kleckner, J. Barrett, 750
Kneece, Daniel Rufus, 916
Knight, William P., 1387
Koch, Alvin Adam 836
Korell, Frederick Archimede, 750
Kosek, Frank Joseph, 1386
Kremer, John W, 916
Kriesel, William August, 64
Krudop, Harry John, 750
Kult, John Frederick, 1385
Kurtz, Walter J, 244
Kysor, Benjamin Bennett, Jr, 478

Ladd Maynard, 1385
Lafontaine Emma Caroline, 551
Lambert Samuel Waldron, 663
Lanester, Rowland McNair, 245
Lane, David A., 836
Lune, Franc H., 1387
Lungrall, C. D. D. M. M. S., 997
Luften, Frederick Jackson, 836
Larkin Martin Joseph, 1511
LiSalle, Gilbert M., 245
Lawrence, David Henry, 1386
Lawson, John E., 1387
Icach, Albert Clinton, 64
Ice Floyd James 1156
Leech, Frank, 1385
Icamerz, Theodore Henry, 64
Letherland, Albert, 244
Levy, Jacob Joshun, 1385
Lewis, Joseph Stockling, 1156
Lewis, Miles J., 553
Lincoln, Winthrop Clinton, 750
Link, Henry Recess, 1156
Locke, Mahlon William, 1511
Logan, Clifford Kuylendall, 663
Logan, Frederick Alexander, 1510

Lyon, Prederick Dow, 162
Lyon, Martha Maria Brewer, 1156

M

McAllister, John, 1511
McAvoy, Michael Joseph, 1239
McBride, James Lowry, 162
McBride, James Lowry, 162
McCarty, Frederick Eugene, 149
McCarty, Frederick Eugene, 149
McCarty, Frederick Eugene, 149
McCarty, Charles Francis, 245
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McCardy, Joseph Wright, 1396
McGardy, Frederick, 910
McGalla, McGardy, 1398
McGornald, Wright, 1396
McGornald, McLardy, 1398
McGornald, McLardy, 1398
McGornald, McLardy, 1398
McGornald, McLardy, 1398
McMcHall, Samuel McLardy, 1397
McLoone, John Joseph, 663
Marth, Arthur Prancis, 245
Marthur, John Albert, 1510
Marko, James Oox, 534
McMillan, Arthur Prancis, 245
Marthur, John Albert, 1510
Marko, James Oox, 534
Marthur, John Albert, 1510
Marko, James Cox, 534
Marthur, John Albert, 1510
Marko, James Cox, 534
Mandon, Wright, 1396
Marthur, John Albert, 1510
Marko, James Cox, 534
Mandon, Wright, 1396
Marthur, John Albert, 1510

Long, John William, 162
Long, William W., 1238
Longacre, Chester Horton, 997
Longmire, Robert B., 750
Loope, Truman E., 17, 915
Losee, Mace Anderson, 64
Loughran, Robert Livingston, 997
Lourle, Osip Raphael, 245
Lowry, David Leslie, 1511
Lowry, Dick: See Lowry, Richard
Clyde
Lowry, Richard Clyde, 915
Lucas, Walter Scott, 1511
Lynn, Richard Clyde, 915
Lynch, Samuel Edward, 1511
Lynn, William Napoleon, 1510
Lyon, Frederick Dow, 162
Lyon, George Curtis, 750
Lyon, Martha Maria Brewer, 1156

M

McAllister, John, 1511
McAvoy, Michael Joseph, 1239
McBride, James Lowry, 162
Mn, John H., 65
McAllister, John, 1511
McAvoy, Michael Joseph, 1239
McBride, James Lowry, 162
Mn, John H., 65
McAllister, John, 1511
McAvoy, Michael Joseph, 1239
McBride, James Lowry, 162
Mn, John H., 65
Mnkivell, James Roberts, 1510
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin V., 1387
Newman, Martin

O'Connell, George Bernard, 245
O'Dell, John H., 1238
Oden, Solomon F., 1337
Oldham, Ira B., 1316
O'Nell, Terence Bernard, 663
O'Nell, Anthony Augustus, 1287
O'Nell, Louis Francis, 1315
Orbin, Walter Brown, 478
O'Rellly, Myles William, 663
O'Rellly, Myles William, 663
O'rleman, Dalsy Maude, see Robinson,
Dalsy Maude Orleman
Osburn, Ezra Eugene, 162
Osenbach, William, 663
Oslin, John Francis, 1511
Owens, Lawrence Beaucham, 554

Robinson, Daisy Mande Oriema 1383
Robinson, James William, 245
Rodaway, Roy Thomas, 64
Rogers, Ivadell, 1157
Rose, Cassie Belle: See Thatche Cassie Belle Rose
Rose, Clarence Atwood, 64
Rose-Thatcher, Cassie Belle, 1156
Ross, Alice Idella, 1316
Ross, Alice Idella, 1316
Ross, Charles J., 65
Ross, George Tillerie, 1510
Ross, James Brodie, 1385
Rowan, Patrick John, 997
Rubel, Harry Francis, 162
Ruble, William K., 1157
Russell, Lemuel Baxley, 1316
Rutledge, Edward, 1156
Rutledge, George M., 316

Salisbury, James William, 750
Salsbury, Julius Eugene, 836
Salsbury, Julius Eugene, 836
Sample, Charles Schuitze, Jr., 1510
Sandy, George Lawrence, 750
Sarchet, Lloyd Henry, 64
Sargent, Andrew, 1239
Satterthwaite, Joseph H., 162
Sawyer, Walter Fairbanks, 316
Sayre, Conrad Fisher, 1316
Scanlan, Francis Joseph H., 162
Sawyer, Walter Fairbanks, 316
Scanlan, Francis Joseph H., 162
Scanlan, Francis Joseph H., 162
Scanlan, Francis Joseph H., 162
Schender, Milliam Rhinehart, 316, 1157
Schick, William Rhinehart, 316, 1157
Schick, William Rhinehart, 316, 1157
Schick, William Rhinehart, 316, 1157
Schender, Maurice, 161
Schoedel, Adrian Collison, 1239
Schupmann, Albert, 1511
Schwinn, Jacob, 835
Scott, Emma, 836
Scott, Emma, 836
Scott, Emma, 836
Scott, Hervey Barbour, 316
Scott, Sidney L., 316
Scott, Sidney L., 316
Scott, Sidney L., 316
Scott, John Andrew, 916
Segnour, Bina, 316
Shafer, Joseph J., 1238
Shafiner, Thomas Luclus, 1511
Shatara, Fuad Isa, 1885
Sheldon, Everett A., 316
Shelly, Isaac High, 1157
Shetrone, George Edwin, 161
Shilling, Ellis Ray, 1157
Shipp, Jack Sawyer, 65
Shoemaker, Lafayette Franklin, 1238
Showalter, Joseph Edwin, 663
Shumway, Edward Adams, 835
Sldwell, Frank H., 162
Simpers, Isaac Newton, 750
Sleyster, Rock, 915
Smart, John William, 65
Smith, DeWitt Clinton, 316
Smith, DeWitt Clinton, 316
Smith, DeWitt Clinton, 162

Raymond, Alexander, 1157
Ream, Frederick Kent, 1237
Reddick, Alton Bowie, 1239
Redmond, Robert Everett, 554
Reid, George Clute, 1156
Reigel, Erasmus L.: See Reigle, Erasmus L.
Reigle, Erasmus Lear, 162
Reinke, Charles Knauss, 1510
Rentschler, Harry Fleisher, 1239
Reduce, Peter Augustine, 316
Rexford, Charles Myron, 336
Reynolds, Charles Barnett, 1385
Reynolds, Charles Barnett, 1385
Richards, Emrys, 663
Richards, Goscar M., 1156
Richardson, William, 836
Richards, Oscar M., 1156
Rittenberry, Barker, 65
Ritter, William Brady, 997
Robbins, John Dann, 65
Robertson, Colin G., 750
Robinson, Daisy Maude
Orleman, 1385
Robluson, James William, 245
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway, Roy Thomas, 64
Rodaway,

Tanner, William Riley, 65
Tarnovsky, George de, 398
Taylor, Altred Simpson, 1156
Taylor, Joseph Whittler, 997
Teague, Jesse Herbert, 1156
Tecters, Charles A., 663
Ten Broeck, Stanton Jacob, 1156
Tenners, Helen P. Beattle, 162
Terrell, Beecher Johnson, 1157
Terrell, Edmund A., 64
Terry, Arthur Hutchinson, 554
Teter, J. M., 316
Thatcher, Cassie Belle Rose: See
Rose-Thatcher, Cassie Bell
Thomas, James Newton, 916
Thomas, Marion U., 1511
Thomas, Marion U., 1511
Thompson, Francis Alexander, 749
Thompson, Francis Alexander, 749
Thompson, William Sturgis, 316
Thompson, William Anthony, 1511
Thomnson, William Anthony, 1511
Thornton, David H., 65
Thrush, Ambrose Watts, 123
Thurman, Francis Marion: See Thurmon, Francis Marion
Thurmon, Francis Marion, 1238
Tlockell, Alfred H., 1239
Tople, Andrew Charles, 1387
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Frank Downey, 1156
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, Frank Downey, 1156
Travis, Richard Churchill, 65
Travis, Richard Churchill, 65
Travis, William Medwin 1157
Turner, Earl Hudson, 65
Turner, Earl Hudson, 65
Turner, William Blount, 11, 1157
Turner, Earl Hudson, 65
Turner, William Blount, 11, 1157
Turner, Earl Hudson, 65
Turner, William Blount, 11, 1157
Turner, Earl Hudson, 65
Turner, William Blount, 11, 1157

Ullman, Albert Frederick, 1386 Ulman, Frederick George, 1316 Urle, John Francis, 749

Valois, Joseph Michel Arthur, 65
Vance, Frank W., 997
Van Horn, James Byron, 1316
Van Tine, Jefferson Brockner, 1316
Vardon, Ernest Maxwell, 64
Vastine, Douglas Hursh, 64
Vermillion, Clinton D., 1156
Via, Guy Forrest, 836
Vickery, Lee Olis, 1239
Vogt, Francis Contad, 65

Sleyster, Rock, 915
Smart, John William, 65
Smith, DeWitt Clinton, 316
Smith, Ernest Bartine, 162
Smith, George Albert, 478
Smith, James Sidney, 162
Smith, Lon V.: See Smith, Lon V.: See Smith, Lon V.: See Smith, Lon V.: See Smith, Samuel Bryan, 826
Smith, S. D., 1239
Smith, William Grady, 245
Smith, William Grady, 245
Sneer, Howard Burnett, 916
Spencer, Oscar Leonard, 162
Spriggs, Gertrude Anna, 192
Spriggs, Gertrude Anna, 192
Stack, John Joseph, 997
Stadtmuller, Ellen Smith, 61
Smith, S. Mart, George Walter, 216
Ward, Henry Han-ford, 995
Warren, George Walter, 316
Warty, Joseph, 1357
Warren, George Walter, 316
Watry, Joseph, 125
Watton, Fred V., 1238
Watt, Fred William, 162
Weber, George Hoodore, 516
Webster, Albert George, 1155
Webster, Charles Abiton, 161
Wattry, Joseph, 1357
Watten, Fred William, 162
Weber, George Hoodore, 516
Webster, Albert George, 1157
Webster, Thomas Shaw, 1235

Welss, Soma, 478
Weltz, George Jacob, 750
West, Robert Marshall, 1157
Westover, Raymond Robert, 1156
Westveer, George, 1239
Wetherell, George Mortimer, 1239
White, Robert Vandenberg, 316
White, William, 663
Whitney, Oat, 1237
Wieneke, Clarence Henry, 316
Wiggers, Edwin S., 1157
Wilkins, George Ramson, 663
Williams, Thomas Bertram, 554

Williams, William R, 316
Williamson, Mary E Troyer, 1316
Williamson, William F., 1316
Williamson, William F., 1316
Willis, Charles Harkness, 1237
Wills, Don Creed, 554
Wills, William Edward, 663
Wilson, Arthur W., 1387
Wilson, Charles Henry, 65
Wilson, Hollie Bascum, 1239
Wilson, John D, 65
Wilson, John D, 65
Wilson, Sidney Johnston, 749
Wilson, Theophile Hubert, 65
Wilson, William A, 65

Windle, Okey N., 1387 Wishart, William Emmett, 1510 Wishart, William Emmett, 1510
Wolf, Isadore Julius, 554
Wolf, Julius, 1315
Wood, Casey Albert, 996
Wood, Charles Van, 554
Wood, Lilla B, 65
Wood, Lilla B, 65
Wood, Watson Fuller, 1238
Woods, Edgar, Jr. 245
Wooten, Goodall Harrison, 1511
Wright, Harper Ancel, 1387
Wyatt, Marlon Grant, 750
Wyland, George, 1386

Yancey, Edwin Forrest, 64 Yesko, Stephen Aloysius, 316 Yorks, William K., 162 Young, Charles Joseph, 478 Young, Walton Wheeler, 1238

Ziemer, William 0, 316 Zierath, William Frederick, 749

E

EAR: See also Deafness, Hearing, Otorhino-lary ngology Inflammation of Middle Ear See Otitis Media innammation of Middle Lar See Othis Media middle and internal, injuries to, rupture of tympanic membrane, [Grove] 172—ab rejection of selectees, [Rowntree & others] *1226

EATING: See Food, ingestion of Utensils: See Cooking and Eating Utensils ECHINOCOCCOSIS, hydatid disease in New Zealand, 995
Sociedad Internacional contra la Hidatosis,

ECLECTIC Medical College of Cincinnati, com

plete dissolution, (Council report) 1148—0S ECONOMICS, resources of Japan, 546—0S ECONOMICS, MEDICAL See Medical Service

ECTASIA See Aotta
ECZEMA etiology, sensitivity to human dander,
[Hampton] 486—ab
harmless cleansing of skin, [Burckhardt]
849—ab

Namess (Education) (1984)—ab nostrum, Blanchard's Lotion, 164—BI treatment, histamine azoprotein, [Sheldon] 486—ab

EDEMA. See also Ascites familial hereditary (Milroy's disease), mercupurin for, [Stern] *1212 treatment in glomerulonephintis, 1525 treatment, saly rean-theophylline tablets orally, [Borg] 1404—ab

EDINBURGH. See University of Edinburgh EDISON Foundation See Foundations

EDUCATION See also Children, school, Graduates, Schools, Students, Teachers, University
Board of: See Schools

University
Board of: See Schools
in industrial health, [Seeger] *1017
EDUCATION, MEDICAL. See also Graduates,
Internships, Schools, Medical, Students,
Medical, University
A M A. Annual Congress on, Feb 16-17,
1942, 303—E, (program) 308—OS
A, M A. Council on See American Medical
Association

Association
Course: See also subheads: curriculum; graduate, industrial courses in chemical warfare at Woman's Medical College, 393 courses in pathology at Woman's Medical College, 311 courses in psychiatry and neurology, George Washington U., 655 courses in sulfonamide therapy, N Y, 1308 curriculum (accelerated), A M A Council resolution adopted, 735—E, 751, 1496—OS curriculum (accelerated) and internships, N, C, 1380 curriculum (accelerated): (Duke, 4 Boston

N. C., 1380
curriculum (accelerated): (Duke, 4 Boston schools) 333—SS, (Yale, Indiana) 334—SS, (Minnesota, Indiana, Vanderbilt, Western Reserve, 5 New York schools) 761—SS

761—SS
curriculum (accelerated), Federation of State
Medical Boards memorandum, 986
curriculum (accelerated), graduates eligible
for licensure, Calif. 1378
curriculum (accelerated), 36 consecutive
months advisable 228—E, [Mudd] 556—C
curriculum adjustment to industrial health
problems, [Allen] 646—ab
early, in United States, 759—SS
Fellowship, See Fellowships
Graduate See also Education, Medical,
industrial courses
graduate assembly, (Mid-South), 393
graduate, by American Psychiatric Association, 831
graduate clinical conference, Dallas, 745

tion, \$31
graduate clinical conference, Dallas, 745
graduate clinics, (midwinter, Colorado) 469,
(Wisconsin) 1152
graduate continuation courses, (Ian April, 1942) 54—E. *69, (Texas) 240, (April-July, 1942) *1390
graduate, courses in aviation ophthalmology and medicine at George Washington U, 173
graduate courses in eye, car and throat, Virginia, 910
graduate courses in gastroenterology and cardionascular diseases at Mt Sinai, 991
graduate courses in obstetrics at Chicago
Lying-In, 58
graduate courses in oral pathology at Colum

praduate courses in oral pathology at Columbia, 1151 graduate courses in pediatrics, U of California, 391

EDUCATION, MEDICAL—Continued graduate courses, (New York) 59; 239, 310; 392, 471, 548, (N C) 548, (Mass) 856 graduate day (Mahoning Co, O) 1232 graduate institute, Philadelphia, 992 graduate instruction, Medical Society of Virginia changes, 1152 graduate, Iowa State Medical Society reviews activities, 391 graduate lectures on obstetrics and pediatric care, Neb, 1308 graduate lectures, (Toronto) 61, (Philadelphia) 548, (New York) 829 graduate, neuropsychiatric institute, Mo, 239 graduate, refresher courses, Colo, 309, (correction) 469 Graduate School See Schools, Medical graduate study for Negro physicians in the South, [Cornely] **224 graduate week in medical history at Johns Hopklins, 1370 industrial clinical clerkship for clinical medical students, [Wampler] 647—ab industrial health, [Seeger] **1017 industrial health graduate education, Iowa, 622—E industrial problems, curriculum adjust-

b22-L industrial health problems, curriculum adjust-ment to, [Allen] 646—ab industrial health—separate discipline, [Haz-lett] 646—ab

fett 1 446—ab industrial health teaching, (Council report) 731, 1471—0S industrial hygiene instruction correlated with other chinical training, [Cummings] 647—ab Postgraduate Work See under subhead

Graduate
teaching program in hospitals approved for
intership, 1499—OS
tuition waived for military men in course in
amputations at New York U, 829
EFFORT and arterial occlusion, [Sprague]
1330—ab
Syndrome: See Asthenia, neurocirculatory

1330—ab

Syndrome: See Asthenia, neurocirculatory
EGGS, do double-yolked hen's eggs hatch as two
living normal chicks? 682
duck vs hen, culture of rickettsias and viruses
in, [Gispen] 414—ab

"egg white injury" in man, biotin concentrate
cures [Sydenstricker & others] *1199
origin of acute anterior poliomyelitis: chickens and turkeys, [Preioni] 490—ab
EINHORN, MAN, 80th birthday, 830
ELBOW, arthritis of, ulnar neuritis due to,
[Jiménez Días] 923—ab
care of, in arthritis, [Joplin & Baer] *939
fracture, nonsplinting treatment, [Neuwirth]
**971
ELDERLY See Clif Acc.

*971 ELDERLY

ELDERLY See Old Age ELECTRIC heated blankets on American am-

bulances for wounded airmen, 314
high frequency apparatus causing radio interference, Australia, 477
Lights See Lighting
shoth, electrocardiographic study, [Streit]

shock, ele 177—ab

shock, subconvulsive reaction to, [Watkins] 85-ab ELECTROCARDIOGRAM See Heart

LLECTROENCEPHALOGRAM See Brain ELICTROLYSIS, Mahler Apparatus, 217—BI ELICTROPHORESIS, to determine serum pro-teins in hepatic diseases, [Gray] 1323—ab ELECTRORESECTION: See Prostate

ELECTROIESECTION: See Prostate
ELECTROTHERMY. See Dlathermy
ELEPHANTIASIS, Congenital. See Edema,
familial hereditary
ELIZABETH, Queen of England, Issued statute
on dissection of executed criminals, 1170
ELSBACH, ERNEST J. Coll Metabolin (Tosse),
[Loveless & Baldwin] *451, (Council report) 456, 461—E
EMBLEMS, American Psychiatric Association
contest for design of, 992
EMBOLISM See also Thrombosis
acute embolic occlusion of arteries to extremities, [Atlas] 1520—ab
cerebral, in mitral stenosis, [Harris] 168—ab
pulmonary, bronchial factor in, [Jesser] 1401
—ab

mulmonary, clot retraction time in, effect of hepatin, [Hirschboeck] 1161—ab pulmonary, experimental, [Megibow] 1256—ab pulmonary, fatal, after varicose vein injection, [Vaughn & Lees] *12°3 pulmonary prophylaxis by division of femoral vein, [Fine] 253—ab pulmonary, thrombophicbitis and puerperal sepsis 13°39

EMBOLISM—Continued

pulmonary, venographic diagnosis (Bauer's method), [Starr & others] *1192

EMERGENCY Base Hospital, Field Units; Medical Service. See Medicine and the War Cooperating Committee for Children and Youth, 393

Hospital Service in English speaking countries, 551

Treatment. See First 122

Hospital Service in English speaking countries, 551
Treatment. See First Aid
EMIGRE Physicians. See Physicians, foreign
EMIPHYSEMA blebs treatment of spontaneous
pneumothorax, [Brunner] 1016—ab
chronic hypertrophic vesicular fibroid pulmonary, winter bronchitis, 568
cyanotic chronic bronchopneumopathy and
Ayerza's disease, [Pontes] 412—ab
interstitial, proteus vulgaris as gas producer
in diabetes, [Leder] 664—C
EMPIRE Rheumatism Council, 5th annual report, 1508
EMPLOYEES, EMPLOYMENT. See Industrial
Health; Unemployed
EMPYEMA, acute pleural, in infants soon
after pneumonia, [Bettinotti] 673—ab
in children, 243
thoracis postpneumonic, sulfonamides for,

after pneumonla, [Bettinotti] 673—ab in children, 243 thoracis postpneumonle, sulfonamides for, [Burford & Blades] *950 treatment, tyrothricin, [Herrell] 1401—ab ENCEPHALITIS See also Encephalomentingitis, Meningoencephalitis, Polloencephalitis following measles, [de Mattos] 1016—ab including Schilder's disease, electroencephalogram in, [Gibbs] *216 ENCEPHALITIS, EPIDEMIC, control, suggestions for, mosquitoes, and wild birds as vectors, [Hammon] 66—C Japanese type, [Kitagawa] 89—ab St Louis type, and Japanese B, diagnosis by complement fixation test, [Casais] 257—ab St Louis type, in Pinal County, Ariz, [Melkelpion & Hammon] *961 St Louis type, tyrus, transmitted by mosquitoes, [Milzer] 1162—ab vaccination of man as well as horses, [Hammon] 68—C virus etiology, [Dingle] 1331—ab ENCEPHALOGRAM. See Brain, electroencephalogram

alogram
ENCEPHALOMENINGITIS: See Meningoen-

ENCEPHALOMENINGITIS: See Meningoencephalitis
ENCEPHALOMYLLITIS, equine, and mosquito control, California, 469
ENCEPHALOPATHY See Brain disease
ENDARTERITIS, streptococcus viridans, on ductus arteriosus, operative cure plus sulfathiazole, [Touroff & others] *890
ENDOCARDITIS, bacterial, sulfonamides for, [Kinsella] 1006—ab
Salmonella sulpestifer infection, [Goulder] 1517—ab
subacute bacterial, cure with sulfanatidine

1517—ab subacute bacterial, cure with sulfapyridine, [Nye] 917—C subacute bacterial, sulfanilamide and im-munotransfusion for, [Friedberg] 676—ab subacute bacterial, sulfanilamide for, [Field] 849—ab

842-ab
ENDOCRINE GLANDS. See also under names

of specific glands
GLANDULAR Physiology and Therapy, 1167 -0S

manifestations in diabetics, [Daugherts] 1013 -ab

notice to manufacturers of preparations, 391 thymus relation to, Houssay on, 833 ENDOCRINOLOGY, elective course in, at U of Chicago, 713
ENDOMITRIOSIS, [Meigs] 273—ah benign and malignant stromal, [Robertson] 1405—ab effect of gonadotropin intramuscularly on, [Brewer & others] \$278 perineal, result of implantation in prolapse operation, [Jessing] \$52—ab ENDOMETRITIS and tubal pregnancy, [Schiller] \$13—ab

\$\frac{413-ab}{ENDOTOXIN} gravis role in malignant diphtheria, 380-E
ENERGY Metabolism. See Metabolism, basal
Value of Food. See Calorics
ENGELHARDT-Sodeman Test. See Kidneys,

ENGLHARDT-Sodeman Test. See Kiuneys, function
ENGLAND. See also British, Royal
Anglo-Soviet medical relations, 552
at War See World War II
ENROLMENT for Military Service See Medicine and the War
ENTERITIS See Intestines

ENTEROBIUS vermicularis infections: See Ovyuriasis

ENTEROGASTRONE, liberation of, in peptic ulcer, [Luckhardt] 664—C; (reply) [Dick & Eisele] 664—C
ENZYMES: See also Coenzyme; under names of specific enzymes as Histaminase. Tyrosinase.

proteolytic (carold) injection a dangerous procedure, [Key] *516

EOSIN, rapid card technic for blood typing using, [Thalhimer & Myron] *370

EPHEDRINE, inhalants in oily vehicles, (Council report) 378

cll report) 378
nose drop contamination in dropper bottles,
[Gompertz & Michael] *1287
EPIDEMICS See also Coccidioidosis, Conjunc
tivitis, Discentery, Encephalitis, Influenza,
Poliomyelitis; Syphilis, etc
Commission on Epidemiologic Survey, 464
controlled in schools by ultraviolet disinfection of air, [Wells] 1326—ab
Prevention. See Immunization, Quarantine;
Vaccination

tion of air, [Wells] 1326—ab
Prevention. See Immunization, Quarantine;
Vaccination
U. S. Army Central Epidemic Control Board
8 investigating commissions, 463
EPIDERMOPHYTOSIS inguinale, copper sulfate
ion transfer for, [Greenwood] 80—ab
interdigitale nostrum JR 247—BII
interdigitale nostrum JR 247—BII
interdigitale, shoes and shippers sources of
reinfection, [Jamieson] 81—ab
EPIDIDYMITIS, acute suppurative, caused by
pneumococcus type X, [Heckel] 406—ab
EPIGLOTTIS, ethmosphenodal epigloitidean
syndrome, [Felderman] 81—ab
EPILATION See Hair removal
EPILEPSY, atypical dementia paralytica of Lissauer type, 833
electroencephalogram in, [Gibbs] *216
fertihity of epileptic, 315
idiopathic, allergic factor in, [Dewar] 410—ab
Institute on (first annual) Cleveland, 909
laughing and petit mal, 94
selzures and syncope comparative features
[Welss] *532
treatment, phenobarbital amphetamine coriects depression from, [Robinson] 80—ab
treatment, phenytoin hyperplastic gingivitis
[Ziskin] 81—ab
treatment phenytoin sodium [Gvárfás] 927
—ab, 1312

ticatment phenytoin sodium [Gvárfás] 927 —ab, 1312

-ab, 1312
treatment, phenytoin sodium, depressive cardiovascular action, 1312
treatment, phenytoin sodium, memory disturbed after, 679
treatment, phenytoin sodium untoward effects,
[Finkelman & Arieff] *1209
EPINEPHRINE hydrochloride, N N R (solution Endo) 227
in 0il, N N R (1 500-Lakeside), 1217
inhalants in oily vehicles, (Council report) 378

injection (intra-arterial) effect on myasthenia gravis, [Harvey] 1007—ab nomenclature of salts of basic substances, adrenalin, suprarenalin, suprarenin (Council decision), 617 sensitivity to, before and after splanchnic nerve section, [de Takats & others] *505 slow, speed of action of [Bacon] 486—ab spinal cord lesion from 856 EPIPHYSES dystrophy, multiple, [Ottolenghi] 850—ab

nvenile osteochondral chondroepiphys tis hypothyroidism, [Schaefer] 607—ab EPITHELIOMA See Chorionic Carcinoma Pseudoepithelioma 850—ab juvenile

**EPITUBLE CULOSIS** See Tuberculosis, Pul-

monary
EPSOM Salts See Magnesium sulfate
LQUINE Serum: See Gonadotropins
EQUIPMENT: See Apparatus, Medical Sup-

EQUIPMENT: See Apparatus, Medical Supplies

ERGGGENICS, fitness, fatigue and recuperation, use of. [Helibrandt] 409—ab

ERGOT poisoning or worry, S57

ERGOTAMINE combination stimulates colon, [Adlet] 1402—ab

ERUPTIONS. See also under names of specific discress as Measles, Scarlet Fever generalized rash late in pregnancy, 94

ERTTHREDEMA, acrodunit, [Gareau] 1251—ab

ERTTHREMIA. See Polycythemia

IRYTHROBLASTOSIS, fetal, isoimmunization in, 143—E; [Levine] 843—ab

neonatal, [Javert] 1412—ab

ERTTHROCYTES, cerebral necrosis in sickle cell disease, [Connell] *893

Count See also Anemia, Pernicious, Polycythemia

count, high pressure effect on, [Okudi] 258

count, high pressure effect on, [Okud1] 258

count in toluene-exposed workers, [Greenburg & others] *573, [von Oettingen & others] *579

clintle, in \$6 members of 3 interrelated families, [Wrandt] 670-ab immature in agnogenic myeloid metaplasia of spleen, [Reich & Rumey] *1200 suspensions in anemia treatment, [Williams] 753-ab

ERYTHROCYTES--Continued

ERYTHROCYTES—Continued
undescribed crythrocytogenesis in human
sternal marrow, [Limarzi] 1004—ab
ERYTHROL tetranitrate as vasodilator, 181
ESCOBAR, BENYIGNO T. death, 160
ESKIMO-dogs, toxicity of liver of, 337
ESOPHAGUS, hiatus hernia, symptoms similar
to angina pectoris, [Jones] 1255—ab
ESSELSTEIN'S "Cancer Cure" 1513—BI
ESTEMETER, Gland, 246—BI
ESTRADIOL, alpha, sublingual administration,
[Hall] 1253—ab
benzoate injection for amenorrhea, [Zondek]
*705
changes in liver blood and hone marrow

changes in liver, blood and bone marrow produced by, [MacBryde & others] 1003 -ab, *1278 ESTROGENS See also Amniotin Estendial

See also Amniotin, Estradiol, Estrone

Estrone
diethylstilbestrol, changes in liver, blood and
bone marrow produced by, [MacBryde &
others] 1003—ab. *1278
diethylstilbestrol orally effect on menopruse
symptoms, [Peelen] 487—ab
diethylstilbestrol pellets implanted in menopausal syndrome, [Bennett & Te Linde]
*1341

hatsat shattone, themset a re land, #1341 diethylstilbestrol plus vitamins for hyponoarlanism [Byrne] 1411—ab diethylstilbestrol, toxicity in chronic arthritis, [Aaron] 403—ab diethylstilbestrol vs stilbestrol (Council decision), 618 effect of large doses on blood picture of dogs, [Tyslowitz] 323—ab effect on natural resistance to infection, [von Haam] 1002—ab effect on serum calcium in skeletal cancer metastases, [Farrow & Woodard] *339 N N R, tablets, solution, (Lakeside), 897 synthetic, in gynecologic disease, [Arenas] 1417—ab synthetic (RG-20) therapeutic use, [Gordon]

synthetic (RG-20) therapeutic use, [Gordon] 1002-ab. 1003-ab

treatment injection for amenorrhea, [Zondek]

7(13) treatment of amenorrhea not contraindicated for diabetics, 1170 treatment of genorrheal vulvovaginitis, [Notes] 1317—C

treatment of prostate cancer with stilbestrol,

treatment of prostate cancer with stilbestrol, \$555

treatment of scalp imgworm [Yanez] 1259
—ab [Poth] 1330—ab
treatment of sexual infantilism, [Lisser] 1253—ab
treatment relation to nausea and vomiting, [Greene] 171—ab

ESTRONE, changes in liver, blood and bone marrow produced by, [MacBryde & others] 1003—ab *1278
pellets implanted in menopausal syndrome, [Bennett & Te Linde] *1341
LTHEL Beliam3 See Bellam3
ETHER Anesthesia See Anesthesia convulsions, possible death from, 935
ETHICATOR ("rum's license tevoked, 656
ETHICS, MEDICAL, medical advertising regulated by law, Blo de Janeuro, 1235
counts society action in expelling member, California 1476—OS
ETHMOSPHENOIDAL epiglottidean syndrome, [Felderman] 81—ab
ETHYINVL Testosterone See Pregneninolone
ETHYLMORPHINE hydrochloride, intrauterine keratitis or birth injury of cornea, 420
diETHYLSTILBESTROL See Estrogens
EUCGNICS See Sterilization, Sevual

ETHYLMORPHINE hydrochloride, intrauterine leratitis or birth injury of cornea, 420 diETHYLSTILBESTROL See Estrogens EUCOZONE, 163—BI EUGENICS. See Sterfilzation, Sevual EUNUCHOIDISM, effect of androgens on blood count of men [McCullagh] 1003—ab EUROPEAN WAR 1939— See World War II EUSTACHIAN. TUBES, obstruction, cruses vertigo, [Merica] *1282 EVANS Lectures See Lectures
EVIDENCE See Medicolegal Abstracts at end of letter M
EVIPAL Soluble See Anesthesia
EWING'S tumor, gradation of (endothelial myeloma), [Campbell] 171—ab
EXAMINATION See American Board, Physical Evandination, State Board, etc
EXANTHEMS See Eruptions
EXECLITYE Sales Corporation, 837—BI
ENERCISE See also Athletics
for atavia, 770
therspeutic in Kenny method for pollomyellits [Pohil] *1131, [Dalv] *1431
ENERTION See Effort
ENFOLIATION See Fatigue
EXHIBIT See American Medical Association;
Physiclans, avocations
ENOPHTHALMOS See Golter, Toxic
ENPLORERS, famous, who were physiclans
David Livingstone and Elisha Kent Kane,
[Holcomb] 330—SS, (Kane graduated from I of Pennsylvania) 764—SS
ENPLOSIVES See also Bombs (cross-reference); trintirotoluene
Fourth of July injuries due to, *16
high, injury to lung from detonation of,
[King] 1413—ab

EXTREMITIES: See also Arms, Foot; Legs acute embolic occlusion of arteries to, [Atlas] 1520-ab Amputation. See also Amputation

Amputation. See also Amputation cancer in acrodermatitis chronica atrophicans, [Pack & Wuester] *879 and restoring, [Landowne] 1253—ab cancer of upper, [Campbell] 169—ab circulation in lower, effects of interrupting crush syndrome from debris falling during air raids, [Mattland] 411—ab; 911, 1311

Paralysis: See Hemiplegia, Paraplegia; Tetraplegia
ulcer (chronic hemolytic streptogogous), soil-

Tatalysis: See Hemiplegia, Paraplegia;
Tetraplegia
ulcer (chronic hemolytic streptococcus), sulfanilamide for, [Taylor] *1196
venographic diagnosis (Bautra method) of
lower, [Starr & others] *1192
EYEBROW pencil, dermutitis from, 1170
EYEBROW pencil, dermutitis from, 1170
EYELASSES See Glasses
EYLLASH, Ethel Bellamy Eyelash Luxurlant,
246—BI
EYELID, angloma, solidified carbon dioxide applicator for treating, [Carpenter] *296
can bee sting to upper lid produce retina
detachment? 682
EYES See also Blindness; Conjunctiva; Cornea, Glasses; Nerves, optic, Ophthalmalogy, Retina; Vision
Accommodation See also Night Blindness
accommodation and vitamin A; effect of
alcohol, benzedrine and vitamin C, [Yudkin] 1521—ab
accommodation, dark adaptation, level of

accommodation, dark adaptation, level of vitamin A in blood, [Lewis] \$41—ab burn, ultraviolet, 1264 changes (early) detection in avitaminosis A, 54—E

changes (early) detection in aritaminosis A, 54—E conditions in diabetic, [Boyd & others] *696 Disease See also Cataract, Glucoma, Trachoma, etc disease and vitamin deficiency, Trindad, [Mither] 252—ab disease, nostrum Acme Laboratory "D I-T," "Oroseptol," 317—BI extreme prematurity and persistent tunica vasculosa lentis, 736—E foreign bodies, magnifier and magnetized while loop to remove, [Blederman] *82 gas exposure to lewisite and mustard, hadrogen perovide for 1374 Gonorhea See Conjunctivitis injuries, extensive survey of, by National Society for Prevention of Blindness, 157 injuries, Fourth of July fireworks and explosives cause of, *46 injuries, prevention, A M A Section Committee report, [Snell & others] *610 jumplogranuloma venereum ophilhalmitis suffadiazine in, [Oliphant & others] *453 manifestations in myasthenia gravis, [Mattis] 671—ab neuromuscular anomalles of, course on, Chi-

041—A0
neuromuscular anomalies of, course on, Chicago, 990
Paralysis See Paralysis, abducens
Plnk Eye See Conjunctivitis
rejection of Selectees, [Rowntree & others]
*1226

tuberculosis, toxic syndrome, [Charlin] 921

FABRICS See Cotton, Felt, Nylon Rayon FACE See also Eyes Jaws Mouth, Nose, etc Cream: See Cosmetics restoration, course in at Indiana U, 761-85 skin of matching olutiment colors to, 916 FACTORY workers See Industrial Health FAINTING See Syncope FAIRYSTONE, 164-BI FALLING drop method for specific gravity, IBarbour & Hamiltonj 248-C FALLOPIAN Tubes See Olducts FALLOT'S Tetralogy See Heart anomalies FALSE Imprisonment See Medicolegal Abstracts at end of letter M FAMILIES See also Children, Heredity, Infants, Martlage, Maternity; etc Disorders Occurring in See Adaxia, Cataract, Dwarfism, Idema, Partivsis, familial periodic, etc expenditures for medical care, 1501-08 Size of See Fertility study of parole of mental putients, fimily care, 154
FARM Security Administration, (Dr. C. I. Nevberty goes to) 831, (program) 1422-05 tractor operator, audiogram of, [Bunch] *737 FASCIA space infection of hand, [Grodinsky] FASCIA space infection of hand, [Grodinsky] 1164-ab

FATIGUE—Continued fallure of amhoacetic acid to increase work capacity, [King & others] *594 fitness, and recuperation; use of ergogenics, [Heilebrandt] 409—ab FATTY Degeneration: See Liver FAULTLESS Laboratories, "Sulpho-Matle" FATIGUE-Continued

Itness, and recuperation; tee of ergogenics, [Hellebrandt] 409—ab FATTY Degeneration: See Liver FAULTLESS Laboratories, "Sulpho-Matle" treatment, 318—B1
FECES, "bloody flux," sulfaguandine treatment for, [Lyon] 1256—ab examination for Histoplasma capsulatum, [Henderson & others] *885
Loose Stools: See Diarrhea; Dysentery FECUNDITY: See Fertility FEDERAL: See also United States
Civil Service: See United States
Civil Service: See United States
Food, Drug and Cosmetic Act regarding label, (Courcil decision) 617
Grants. See United States government Income Tax: See Tax
Legislation: See Laws and Legislation federal and state (weekly summary)
Security: See also Social Security
Security Administrator designates habit forming drugs, 639
Security Agency, Joint session with A M A on industrial health, 624—E; [Seeger] 641
—ab; (proceedings) 1228—OS
workers health service proposed, 746
Works Agency, hospitals urged to make own building plans, 639
FEDERATION of American Societies for Experimental Biology, (all expense tour) 1150, (meeting) 1133
of State Medical Boards, (accelerated medical curriculum) 735—E, 986
FEEBLEMINDED See Mental Defectives
FEEDING: See Diet; Food, Liver feeding, Nutrition of Infants: See Infants, feeding

FEEDING: See Diet; Food, Liver recume, Nutrition of Infants: See Infants, feeding Treatment: See Peptic Ulcer, hemorrhage FEES: See also Income (cross reference) expenditures for medical care, 1501—08 increase: B. M. A. recommendation, 1383 physicians must sign fee bill on workmen's compensation, Ohio, 830 schedule for rehabilitation of registrants, 384, 385

385
schedule, physicians to accept 25% reduction, British Columbia, 57—0S
specialists share, with members in service, Indianapolis, 1227
FEET: See Foot
FELLOWSHIPS. See also Scholarships
for South Americans, [Stice] *236; 550, 1310
for women physicians, 155
hospitals approved for, *1067; *1069, *1070,
1143—E, (Council report) 1149—0S
Niles (W L) created, 657
Rockefeller Foundation, 1310
Swift & Co., in nutrition, at Pittsburgh U,
60

Welch (William H), created by Rockefeller gift, 1310 Foundation gift, 1310

Foundation gift, 1310
FELONS: See Paronychia
FELT hat industry, mercurialism in, fur "carroting" process, 54-E
FEMO Caps, Mrs Bee, 247-BI
FEMUR: See also Hip, Thigh
arthrodesis for arthritis, [Brittain] 87-ab
fractures, chondromalacia after, total patellar extirpation, [Friberg] 499-ab
FENGER Lecture: See Lectures
FERGUSON'S Method: See Aschheim-Zondek
Test

Test
FERMENTS: See Enzymes
FERTILITY. See also Spermatozoa, Sterility
comparative, of patients of little contraceptive
experience, [Beche & Overton] *1046
in mental disease patient, German sterilization measures, 315
spermatogenesis and, 935
FETUS. See also Infants, Newborn; Placenta;
Pregnancy

ETUS. See also Infants, Newborn; Placenta; Pregnancy dangers to, in cesarean section, [Falls] *204 Deaths' See Stillbirths delivery of trunh, after head, 936 electrocardlogram, [Ward] 1325—ab, [Bernstein] 1326—ab
Erythroblastosis' See Erythroblastosis still in uterus after bleeding and cervical dilatation, pregnancy be continued? 681 EPVER' See also Rheumatic Fever. Scarlet Fever; Temperature, Body, Typhoid, Typhus, etc.
Glandular' See Mononucleosis, infectious not caused by glaucoma, 682 Rabbit: See Tulaiemia Rat-Bite: See Rat-Bite Fever reactions with readministering sulfathiazole, [Lyons & Balberor] *955 Relapsing: See Relapsing Fever Rocky Mountain Spotted' See Rocky Mountain Spotted' See Rocky Mountain Spotted' See Rocky Mountain Spotted Fever Therapeutic: See also Brucellosis, Gonorrhei; Malarla, therapeutic therapeutic, destruction of antibodies, 1371—E

Undulant: See Brucellosis
Valley: See Coccidioidosis
FIBRILLATION and tremor, comparative study,
[de Jong & Simons] *702

FIBROBLAST, growth, effect of cold on, [Sano]

FIBROBLAST, growth, effect of cold on, [Sano]
1409—ab
FIBROID: See Uterus
FIBROSITIS: See Rheumatism
FILARIASIS, sulfapy ridine in, [Earle] 1165—ab
FILMS See Moung Pictures; Roentgen Rays
FILTRO-Vapor Nasai Filters, 978
FILTRO-Vapor Nasai Filters, 978
FINGEIS. See also Nails
infected, in diabetics, sulfadiazine and sulfathiazole for, [Styron & others] *1424
spasms in capillaries in workers on lasting machines, [Schranh] 850—ab
webbed, surgical correction, 1170
FINKELSTEIN, HEINRICH, death, 746
FINLAY Institute of the Americas established
at U. of Havana, 230—E. (correction) 473
FIRE See Bombs (cross reference); Burns
FIREWORKS, Fourth of July injuries due to,
*46

*46
FIRST AID · See also Medicolegal Abstracts
at end of letter M
courses, Columbia students take, 762—SS
courses compulsory at U of Oklahoma, 762

—SS
courses for physicians, Philadelphia, 658
Handrook issued by Office of Civilian Defense
and American Red Cross, 905
hoarding materials, 1303
instructors—American Red Cross appeals for
funds, 145

funds, 145 kits distributed by Medical and Surgical Re-lief Committee of America, N Y, 905 stations, Jefferson County, Alabama, 542 FISHBEIN, MORRIS, service in war effort, 1485

-OS FISSURE

FISHBIN, MURKIS, SETICE IN WAT CHORL, 1485

-08

FISSURE

See Lips

FISTULA, gastrojejunocolic, [Gray] 170—ab

in mouth after tooth extraction, danger of
sodium sulfonamide, [Klestadt] 998—C,
(reply) [Fletcher] 998—C

pulmonary, in idiopathic spontaneous pneumothorax, [Brunner] 1016—ab

FLATFOOT See Foot

FLEAS, "sticktight," vectors for bubonic plague,
461—L, (Calif) 907

LEXNER Lectures

See Lectures

FLIES See Maggots

FLIGHT Surgeons See Aviation

FLOUR See also Bread

enriched, riboflavin requirement postponed to
July 1, 1942, 241

"FLU" See Influenz

FLUIDS See Beverages, Milk, Water

Infusion, la Bone Marrow See Bone Marrow

FLUIDS See Beverages, Milk, Water
Infusion via Bone Marrow
e changes due to,

tgen Rays

or founding Flying

Or founding Flying
Doctor services, 914

"FOAM powder" as contraceptive, [Beebe &
Overton] *1045

FOOD See also Beverages, Bread; Diet. Fruit
(cross reference), Infants, feeding, Meat,
Nutrition, Vegetables (cross reference),
Vitagins

Autrition, resciants (closs vitamins) alcohol a food? Hopkins essay, 62
Allergy See also under names of specific foods as Milk allergy, sick headaches due to, (reply) [Rowe]

420
A M A Council on Foods and Nutrition:
See American Medical Association
between-meal lunches effect on work output,
[Iv3] *569, (joint Council report) *621
Canned · See Canned Food

Canned See Canned Food concentrated Foodex, 1450 consumption records, evidence of malnutrition, [Jolliffe & others] *945 Digestion of See Digestion eating habits of students at Wayne, 330—SS Energy Values See Calories Federal Food, Drug and Cosmetic Act: See under Federal fortification, Council report, 1469—OS front, Washington, D. C, 990 handlers, protozoa in, [Wenrich] 1406—ab Infant's See Infants, feeding Ingestion of See Ingligestion poisoning, warning against cadmium in cooking utensils, 394 Rationing See also World War II European Front

Front rationing, (France) 474, 475, (England) 660;

rationing of sugar in U S, value to nation's health, [Guy] 1158—C registration certification, Mexico, 476 School lunches See Schools School lunches See Schools store operated by typhold carrier, New York, 744

U S Food and Drug Administration, (notice to makers of glandular preparations) 394. (positions open) [Harrey] *1222 Wartime Measures See Medicine and the War, World War II FOODEX. Council report, 1450 FOOT See also Heels, Orthopedics. Shoes arch supports and other ways to prevent artificite deformities, [Joplin & Baer] *943; *944 Athlete's See Epidemonhytosis interdici-

Athlete's See Epidermophytosis interdigiFOOT-Continued

clubfoot (congenital), sex ratio, [Mau] 25?

clubfoot (congenital), surgical correction in infant, 1170 clubfoot (congenital), treatment, [Roy] 1410

—ab
evfoliation of, 1421
flat feet, walver of physical defects for limited service officers, 1146
frostbite; immersion foot; shelter foot,
[Greene] 1237—ab
infections in diabetes, sulfadiazine and sulfathiazole for, [Styron & others] *1424;
*1426
williams Foot Propagations 164

Williams Foot Preparations, 164 nostrums

rejection of Selectees. [Rowntree & others]

***1226** Ringworm . See Dermatophytosis; Epidermo-

*1226
Ringworm. See Dermatophytosis; Epidermophytosis interdigitale
strain reddened pea sized nodules, 418
FOOTBALL players, specific gravity vs. weight, etc., [Welham & Benhae] *498
teams, aminoacetic acid fails to increase work capacity, [King & others] *594
FORAMEN of Morgani, diaphragmatic hernias through. [Harrington] 409—ab
FORCE, HOWARD J, federal actions against, 1512—BI
FOREIGN Countries See also under names of specific countries as China, England, etc Graduates. See Physicians, foreign
Language See Language rejection of foreigner's under Selective Service [Rowntree] *1225
War See World War
FOREIGN BODIES See also Brain; Eyes migrating Cushing's silver clips, [Halpern] *803
migrating needle in blood stream [Shanko]

*803

migrating, needle in blood stream, [Shaplro]

921—ab FORMALDEHYDE-alcohol solution to disinfect

FORMALDEHYDE-alcohol solution to disinfect instruments, 94
FORMULARY, industrial medical, [Lane & others] *615
National, Epitome of, 1466—OS
National War Formulary, England, 551
FOUNDATIONS, Commonwealth Fund, (aids China) 60 (annual report) 172
Edison (Thomas A), life fellowship conferred on President Sproul, 1307
Littauer (Lucus N), medical research fund, 240

240
Markle, grant to Medical College of Virginia, 60
Mayo, and U of Minnesota, 331—SS
Menninger, organized, 154
Minnesota Medical, 332—SS
National Foundation for Infantile Paralysis, (fund aids soldier's and sailor's children) 472, (grants for research) 519; (report) 659
Nutrition Foundation Inc.

Nutrition Foundation, Inc., created, 1233 Plotz. (annual report) 549

Nutrition Foundation, Inc., created, 1233
Plotz, (annual report), 549
Rockefeller (report), 1310
FOUNDRY "chipper," loss of hearing in, audiograms of. [Bunch] *590
4 H CLUBS, report, 1473—OS
FOURTH OF JULY injuries due to fireworks and explosives, fifth annual summars, *16
FOWL See Chicken, Turkey
FOWLER'S Solution See Potassium arsenite
FRACTURES See also under name of bone as
Femur, Humerus
compound, Orr method for, [Orr] 917—C
glycosuria due to, and diabetes, 261
"intramedullary uniling" in, [Küntscher] 675
—ab

rehabilitation of injured, England, 1154 treatment, ladder wire splints used by Army, 1169

treatment, nonsplinting, of elbow joint, [Neu-wirth] *971
treatment, zinc peroxide, [Pulaski] 846—ab waiver of physical defects for limited service officers, 1146
FRANCE, War with See World War
FRATERNITIES: See also Alpha Epsilon Delta, Alpha Omega Alpha; Phi Delta Fpsilon; Phi Bho Sigma activities at Northwestern, 761—SS medical, history of the Centaur, 764—SS
FRAUDS, FRAUDULENT SALLSMEN: See Impostors

FRAUDS, FRAUDULENT SALLSMEN: See Impostors FREEDOM, individuality and selence, [Blakes-

FREEDOM: individuality and science, [Blakes-lec] *327
FREI Test: See Lymphogranuloma Venereum
FRENCH, War effect on: See World War
FRIEDMAN Test: See also Pregnancy diagnosis
in hydatidiform mole and chorlocpithelioma,
[Ten Scidam] 1336—ab
FROHLICH'S Z'Out Hair Destroyer, 164—BI
FROSTBITE, [Greene] 1257—ab
FROZEN Broccoll, Birds Eye Brand, 819
FRUIT See Currant, Orange, Pectin
FUNGI, Infection: See Blastomycosis; Dermatophytosis, Epidermophytosis, Mycosis,
etc.

etc.
role in dischidrosis, [Dósa] 412-ab
FUNGICIDES sodium orthobenzylphenol and
sodium parabenzylphenol, 1026

FUR, "carroting" process, mercurialism in felt hat industry, 54—E
FURFURAL feeding (Japanese saké), liver cirrhosis from, [Nakahara] 564—ab
FURFURYL-trimethyl-ammonium iodide, action
on bladder, [Lipton] 1517—ab
FURMETHIDE: See Furfuryl
FURUNCULOSIS and thiamine hydrochloride, 1026

diabetes predispose patient to? [Williams]

FUSOSPIROCHETES, onychia and paronychia due to, [Benedek] 1256—ab

GALLBLADDER See also Bile, Bile Ducts cholesterosis, [Arnell] 1016—ab excision in typhoid carrier at Manteno State Hospital, [Saphir & others] *964 infection by Glardia lambilia; atabrine for, [Hartman & others] *608 inflammation, colon bacillus septicemia with, [Lipshutz] 408—ab GALLUP survey of common colds, 241 GANGLION (tumor), treatment by injection of carold a dangerous procedure, [Kev] *516 GANGRENE, gas, in dogs, [Dowds] 86—ab gas, from Proteus vulgaris in diabetes, [Leder] 664—C gas, roentgen therapy, [Kellv] 86—ab; 230—E, (correction) 394 gas, treatment with zinc peroxide and sulfomamides, 981—L, [Reed] 1415—ab in diabetic and nondiabetic, [Lisa & others] *1333 GARRAHAN, JUAN P, rediatric prize to, 659

*1853
GARRAHAN, JUAN P, pediatric prize to, 659
GARBAEdilus. See Bacteria, welchill
Gangrene. See Gangrene
germicidal, to prevent air borne infection,
[Buchbinder] *728, *729, 734—E
polson, defense chemicals against, value of
activated charcoal, 934
PROTECTION AGAINST GAS, tevibook on war
gases, 987
warfare, decontamination, Baltimore's corps,
1385

1305

1305
warfare, decontamination of eyes with hydrogen peroxide, 1374
warfare, instruction at U of Cincinnati, 1304
warfare, sensitivity to mustard gas (HS) and
tear gas (CN), [Lewison] 248—C
warfare, "sniff" sets for Washington, D C, 1437
GASTRIC Juice. See Stomach secretion
Ulcer See Peptic Ulcer
GASTROENTERITIS, spastic, from inhaling magnesium oide, 337
outbreak in defense community, New York, 1504
GASTROENTEROLOGY course at Mount Sinal
Hospital, 991

Hospital, 991
National Gastroenterological Association, Argentine chapter of, 832, 834
GASTROINTESTINAL TRACT See also Digestive System; Indigestion, Intestines; tive Sy Stomach

Storms, Intestinal "Bu," 420
in hyperthyroldism, [Brown] 488—ab
reactions to mapharsen, [Levin & Keddie] *368
vitamin Bi avitaminosis effect on, [GershonCohen] 1249—ab
GASTROSCOPY See Stomach
GEE_HERTER'S Disease. See Cellac Disease
GELATIN, as source of aminoacetic acid, neuritis after influenza, [Gotthoffer] 568
fails to increase work capacity, [King &
others] *594
zinc gelatin paste, Cruricast Bandage, 456
GELMO, P., discovered sulfanilamide in 1908,
862—ab
GENERAL Paresis: See Dementia Paralytica

GELMO, P., discovered sulfanilamide in 1998, 862—ab GENERAL Parests: See Dementia Paralytica GENERAL Parests: See Dementia Paralytica GENETICS: See Heredity GENTALS: See also Genitourinary System; Gonads; Vagina proliferations caused by amedas, treatment with emetine, [Goenawan] 326—ab GENITOURINARY SYSTEM. See also Genitals; Urinary Tract disease, sulfonamides for, [Yoh] 89—ab war injuries of, in Chinese-Japanese War, [Nakauchi] 257—ab GEORGE'S Compound, 163 GEORGE WASHINGTON University, (course in avlation, ophthalmology and medicine) 153, (Smith - Reed - Russell Society) 334—SS; (course in psychiatry and neurology) 655 GEORGIA, University of: See University GERIATRICS: See Old Age GERMANY, health conditions in, 1382, 1383; interned Germans are ill from trichinosis,

interned Germans are ill from trichinosis, 910, 1382

Nazism vs democrac; belief in the common man, 955—ab seval sterilization measures, evaluation, 315 Trotter's theory (1916) of herd instinct as applied to, 62 War with: See World War CENUCIDES. See also Antiseptics, Disinfection, Sterilization, Bacterial gas for preventing air borne infection, [Buchbinder] *725. *729: 734—E nostrum: Eucozone, 163—BI nostrum: Purev, 163—BI

GERM-I-TABS, 246—BI
GERONTOLOGY: See Old Age
GESTATION: See Pregnancy
GIANT Cell: See Arterits
GIARDIASIS of gallbladder, atabrine for, [Hartman & others] *608
GIDDINESS. See Vertigo
GILLIES, Sir HAROLD DELF, lectures by, 834
GINCHUZIUS See Curre

GINGIVITIS See Gums GIRDLES See Corset

GIRDLES See Corset
GLAND ESTEMETER, 246—BI
GLANDS See under names of specific glands
Ductless: See Endocrine Glands
GLANDULAR Fever. See Mononucleosis, in-

GLANDULAR Fever. See Mononucleosis, infectious
Preparations: See Endocrine Glands
GLASS, use in rebuilding houses, 1384
GLASSES (beverage) disinfected with chlorine compounds, 981—E
GLASSES (spectacles), effect of plus lenses on output of hosiery workers, [Tiffin] 652—ab government to provide soldlers with, 463 optical units to accompany armies in the field, 740
ways and means of correcting vision defects, [Snell & others] *612
GLAUCOMA, hereditary, [Allen] 1330—ab not causes of fever, 682
treatment, pilocarpine or physostigmine, illeffects of, 679
GLOBIN (zinc) insulin, [Bailey & Marble] *683

**★683** 

LOBULIN, coagulation, for postextraction hemorrhage, [van Creveld] 1405—ab fractions concentrated with sodium sulfate for blood typing, [Thalhimer & Myron] GLOBULIN.

***370** in Urine See Albuminuria

GLOMERULONEPHRITIS See Nephritis GLOVERULONDPHRITIS See Rephritis
GLOVE Powder See Rubber gloves
GLOVER Institute, 1240—BI
GLUCOSE See Devirose
GLUTATHIONE in blood, liver and spleen, pilocarpine effect on, [Izakl] 414—ab
GLUTEAL Region See Buttocks
GLY-CAS, 246—BI
GLYCENIA See Blood sugar
GLYCERIN, behavior in animal organism, 144
—E

—E CLYCERYL trinitrate as vasodilator, 181 GLYCINE See Acid, aminoacetic GLYCOGEN in liver, depletion of, cause of acidosis, [Mirsk] *690 GLYCOLS See Propylene glycol GLYCOSURIA, fractures and trauma as cause of *261

GLYCOSURIA, fractures and trauma as cause of, 261
GLYON LIDE, W F Koch's, 734—E
GOITER See also Hyperthyroidism adenomatous, myasthenia gravis in, value of thyroidectomy, [Kowallis] 1250—ab adenomatous, preoperative vocal cord paralysis, [Davis] 925—ab
GOITER, TONIC, diagnosis (differential) from conditions simulating it, [Cottis] 562—ab familial periodic paralysis in, thyroidectomy cures, [Hildebrand] 753—ab
myasthenia gravis in, value of thyroidectomy, [Kowallis] 1250—ab surgery of, indications, [Cottis] 562—ab surgery of, morbidity, mortality, [Heyd] 1163—ab
GOLD paint, death of woman covered with,

GOLD paint, death of woman covered with, 568

plating, cyanide dermatitis in workers, 935 Therapy See Leprosy GOLDFLAM-Erb's Disease. See Myasthenic See Myasthenia

GOLDSTEIN, M A, Central Institute for Deaf, St Louis, 182
GOLDWATER, S S, optimistic outlook on nation's health, 468-OS
GOLF, American Medical Golfing Association, 988-OS
GOMENOT, transmission

chorionic, antuitrin S increase has fever symptoms? 770 chorlonic (Prolan A) in urine in testis tumors, [Twombly & others] *106 chorlonic, treatment of cryptorchism, [Drake] 479—C, (reply) [Thompson & Heckel] 479—C.

mare serum, effect on ovulation, [Brewer & others] \$278 secretion in aging men, castrated, or bilateral cryptorchism, vs in menopause, 458—E treatment in scalp ringworm, [Yanez] 1259

ONADS: See also Ovary; Testis hypogonadism, estrogens in, [Arenas] 1417 —ab GONADS:

-ab
GONOCOCCUS culture method, [Welss] 408
-ab; [Mahoney] 1249-ab
Infections: See Gonorrhea
GONORRHEA, chronic, culture studies, [Mahoney] 1249-ab
Conjunctivitis See Conjunctivitis, gonococcic
diagnosis, culture method, [Welss] 408-ab

GONORRHEA—Continued laborator; methods, [Lankford] diagnosis, 925-ab

925—80
prevention, sulfonamide compounds, \$58
transmission in maids; diagnosis; treatment
with sulfathiazole, etc., 680
treatment, arsenical; bismuth, [Brunet] 560

treatment, 5-day cure, with sulfathiazole, 1381 treatment, sulfanilamide, sulfanyiddine and fever at Flizsimons General Hospital, [Peterson & Beuchat] *129 treatment, sulfonamides, [Yoh] 89-ab; [Bru-net] 560-ab

net] 560-ab vaginitis in 1,715 girls, [Cohn] 1254-ab vulvotagnitis, estrogenic treatment, [Notes] 1317-C GORGAS Memorial Institute, 393

GOUT, coffee and tea in, 858 GRADUATE Courses, etc.: See Education, Medical

ical
School See Schools, Medical
Students See Students, Medical
GRADUATES See also Interns; Residencies
Foreign: See Physicians, Ioreign
recommendations, regarding military service,
300—E, 301, 633
GRAFT. See Cartilage; Transplantation (cross
reference)

reference)
Omental or Muscular into Kidney: See Kid-

net surgery
GRAIN See Cercal, Flour; Wheat
GRAINS, tables for converting into Gm or Cc.
[Anderson] 999—C
GRAM'S stain, modified, [Peterson & Beuchal]

*129

*129
GRAMICIDIN, antiseptic value, [Robinson] 1255
—ab. [Herrell] 1401—ab
GRAND MAL See Epileps)
GRANTS for Research See American Medical
Association, Fellowships, Foundations, Research

search GRANULOCYTOPENIA Sec Agranulocytosis, Acute
GRANULOMA coccidioidale: See Coccidioidosis

GRASS, Bermuda, poliens in Brazil, 94
GRAYES' Disease See Golter, Toxic
GREAT BRITAIN: See British; England;
World War

GREGORY, MENAS S, fund for psychlatry,

GRID (Wetzel) for evaluating physical fitness,

[Bruch] *1289
GRIP See Influenza
GROHAIR, Hitter's, 1388—Bi
de GROSZ, EMILE, death, 241
GROUP Hospitalization: See Hospitals, expense

Insurance

Insurance
GROWTH See also Dwarfs; Fibroblasts, Haltanomalies in diabetics, [Boyd & others] *691
grid technic for evaluating, [Bruch] *1239
growing paths in boy, 261
GUANIDINE Hydrochioride Treatment: See
Myasthenia gravis
GUM Arabic See Acacla
GUMS See also Jaws
infirmmation, phenytoin hyperplastic, [Ziskin]
81—ab

81-ab

SUNS, audiograms of police who practiced revolver shooting, [Bunch] *592 GUNSHOT Wounds See Wounds GYNECOLOGISTS, American Association of,

prize, 60
GYNECOLOGY, American Board of, (examina-

tions) 472
American Congress on, (meeting) 993
Arkansas Society of, organized 469
GYNECOMASTIA. See Breast hypertrophy in

male

IADASSAH Medical Center, 1509

IAIR See also Scain
evessive, in infants and children, 770
excessive, Omega Home Use Portable Machine;
Mahler Electrolysis Apparatus, 217—Bl
gray, vitamins for, 302—E, [Hrdlicka] 918

C. Grebelt Willey HADASSAH Medical Center, 1509

Grohair, Hitter's, 1388-Bi growth after removing teeth, [Grace] 1105-ab Kongolene, 163-Bi Loss of See Alopecia permanent wave, Heltue Curtis machineless preparations, 246-Bi removal, Claro Hult Remover, 216-Bi removal, Dr. Froblich's Z'Out Hair De-stroyer, 164-Bi ReVigator Products, 163-Bi shampoos, new detergents, [Lane & Black] *811

*811
Sharing See Shaving
Valeria's Hair Grower, 161—BI
HAITI medical school, institution to inspect,
(Council report) 1119—D5
new public health director Dr. Thebaul 1153
HAJEK collection at Royal College of Surgeons,
158

HALIFAX epidemic of diphtheria gravis, 349

HALL'S Cellophane Tip Swah: See Organists HAMBURGER Lecture Set Lectures

HAND: See also Fingers; Nails; Wrist care of, to prevent arthritic deformity, [Joplin & Baer] *939; *940 exfoliation, 1421 infections, precents. [Gradients 2, 226]

exionation, 7224 infections, pyogenic, [Grodinsky] 1164—ab pustular bacterids, [Andrews] 754—ab HANDICAPPED: See also Disability; Physical Defects

Defects
employees useful, 549
rehabilitation clinic for; to foster their employment, Conn., 1307
HANNA Lecture: See Lectures
HANSON, WILBUR, 1241—BI
HARDY'S Stabilized Iodized Salt, 819
HARELIP, surgical correction, best time for,

HARDY'S Stabilized Iodized Salt, 819
HARELIP, surgical correction, best time for, 1170
HARRISBURG Academy of Medicine, Selbert Award, 1151
HARRISON NARCOTIC ACT, record keeping of exempt narcotic preparations; U. S. Supreme Court decision, 1144—E; 1475—OS Hynson (L. M.) arrested, 1378
HARVARD UNIVERSITY, (cancer work at) 58; (Base Hospital in England) 232; 748; (Oliver Wendell Holmes' address to students in 1861) [Oppenheimer] 319—C; (goes on 12 month basis) 333—SS; (School of Dental Medicine goes on 12 month basis) 333—SS; (description and illustration) 762—SS; 763
—SS; (course industrial hygiene) 1379
HARVEY Lecture: See Lectures
HASTINGS' stain for blood films, 936
HATS: See also Helmets
felt hat industry, mercurialism in; fur "carroting" process, 54—E
HAUSSLING, FRANCIS R., portrait, 548
HAVANA, University of: See University HAWAII: See also World War II, Pacific Front
enidemic virus conjunctivitis (type of "pink

HAWAII: Front

epidemic virus conjunctivitis (type of "pink eye") in, 460—E; [Holmes] 1008—ab HAY FEVER, nostrum: Dr. Hayle's Method,

317—B patients,

317—Bl
patients, tonsillectomy and adenoidectomy
in, 420; [Coates] 1013—ab
symptoms, antuitrin S increase? 770
treatment, Allergy Electric Mask, 48
treatment, "coli metabolin" (Tosse), [Loveless
& Baldwin] *451; (Council report) 456;

& Baldwin] *451; (Council report) 456; 461—E treatment, Hayrin Nasal Filter, 49 treatment, histamine azoprotein, [Sheldon] 486—ab

treatment, short wave, [Brighton & others]

treatment, short wave, [Brighton & others]

*507

tropical, in Netherland East Indies—Java,
[Ter Heege] 258—ab

HAYDEN Scholars at Tufts, 1021—SS

HAYLE'S (Dr.) Method, 317—BI

HAYRIN Nasal Filter, 49

HEAD: See aso Brain; Cranlum; Face; Hair;
Neck; Scalp

injuries, cerebral oxygen consumption after,
[Lindquist] 1324—ab

injuries, wnotor cyclists should wear crash
helmet to prevent, 313

Injuries (war) from shrapnels, missiles at
Pearl Harbor, [Cloward] *267

roentgenology of, course in, Minn., 1150

HEADACHE: See also Migraine
after coitus, 338

after mapharsen, 770
endocrine aspects, [Goldzleher] 486—ab

HEADGEAR: See Hats; Helmets

HEALING: See Fractures; Semilunar Cartilage; Wound

HEALTH: See also Disease; Hyglene; Sanita-

HEALTH: See also Disease; Hygiene; Sanitation

tion
A. M. A. Bureau of Health Education: See
American Medical Association
American Museum of, report, 1380
American Public Health Association and A.
M. A. cooperate, 1474—OS
Center: See also Health units
center, (at Radcliffe College) 239; (federal
grants for) 394; (new Tucson) 547;
(opened, Michigan) 1231
centers in defense areas, federal legislation,
1476—OS
conditions in Germany, 1389: 1383

14:6-08 conditions in Germany, 1382; 1383 department, Detroit, tuberculosis examinations, 827-08 department, loan for, in Chile, 159 department (local) and Illinois defense zones, 738

department, Nashville; contraceptive service, [Beebe & Overton] *1045
Education: See also Physical Education Education, Central Council for, publicity on droplet infection, 396
education, conferences on, New York, 6.57
education for industrial workers, [Bristol] 650—ab education, graduate students to observe work of A. M. A. Bureau, 906—OS education; Nedraska Health Almanac, \$23
—E

—E.—

education program by National Youth Adminlstration, 991

Examination: See Physical Examination

Healthmobile, 310; 1380

in Wartime: See Medicine and the War;

World War

HEALTH—Continued
Industrial: See Industrial Health
Institute: See also Health, National Insti-

Institute: See also Health, National Insti-tute of institute, New England, 1381 Insurance: See Insurance, health Mental: See Mental Hygiene Museum: See also Health, American Museum museum, A. M. A. exhibit at various ones, 1483—08

nation's: Dr. Goldwater's optimistic outlook, 468-08 National Defense and: See Medicine and the

War National Institute of, (Division of Industrial Hygiene) [Seeger] 641—ab; (Dr. Badger named assistant director) 832; (Dr. Hea-cock to coordinate work of state divisions) 1133; (its mobile unit used in industrial service) 1233 of Recruits and Selectees: See Medicine and the War

of Recruits and Selectees: See Medicine and the War of U. S. Navy for 1940, 746 Public: See also other subheads under Health public, conference, Illinois, 1307 public, Delaware Association organized, 907 public, forum, second series, Omaha, 908 Public Health Laboratories: See Laboratories nublic. in Uruguay, 834

Public Health Laboratories: See Laboratories public, in Uruguay, 834 public, Information division established, Kansas, 239 public, new journal: Revista do Instituto Adolfo Lutz, 1310 public, Pan American Conference of, 910 public, satisfactory report on, England, 242 resorts, American, A. M. A. Committee on, 379; 381—E; (work of; rules adopted) 1487—08 resorts, inspection by A. M. A. Council, 1148

resorts, inspection by A. M. A. Council, 1148

resorts, role of spas in medical preparedness, [McClellan] 560—ab School Health: See Schools Security Administrator, Mr. Ross Garrett resigns as, 238 Service: See also Medical Service service for industrial plants, Conn., 309 service proposed for federal workers, 746 state department, and restricting licenses to marry, [Forster & Shaughnessy] *796 State, Territorial and Provincial Authorities, 1381 Statistics: See Vital Statistics

Statistics: See Vital Statistics Statistics: See Vital Statistics
sugar consumption (excessive) in America
detrimental to, [Guy] 1158—C
Supplies: See Medical Supplies
U. S. Bureau of Mines health chief: Dr.
Fulton, 1153
U. S. Public Health Service: See also Medi-

U. S. Public Health Service, (Lewis R. Thompson made chief inspecting officer) 312; (examination for appointment) 473; (new appointment procedure for physicians and dentists) 631; (positions open) [Harvey] dentists) ★1222

*1222 Units: See also Health center units, (local), expansion of, since 1915 and Social Security Act, 1502—OS units, (merge, Tenn.) 472; (new, Neb.) 1150 week, National Negro Health Week, 311 "Your Health and You," free health talks, Obla 471

Okla., 471
Youth Work Defense Program report, 1153
HEARING: See also Ear
aid: Mears Aurophone, 978
aid, Vacolite Model D, 896
aids and audiometers, (Council report) 1468
—OS
aids meeting on 240

aids, meeting on, 240
conservation, in industry, [Bunch] *588
Impaired: See also Deatness
impaired, walver of physical defects for limited service officers, 1146
lectures on, by Dr. Canfield, 309
test, Western Electric 4C Audiometer to test 40
at one time, 1297
HBART: See also Arteries, coronary; Cardiovascular System
American Heart Association desires data on clinics, [Duryee] 1317—C
anomalies, tetralogy of Fallot, [Talbott] 921
—ab

anomalies, tetralogy of Fallot, [Tatlott] 921
—ab
anomalies, truncus arteriosus communis persistens, [Lev] 1255—ab
arrest (20 minute) during operation; complete recorery, [Adams & Hand] *133
Black Cardiacs; See Ayerza's Disease
block, Adams-Stokes syncope due to; treatment, [Welss] *534
boxing effect on. [Butterworth] 1325—ab
California Association, 1378
changes in yellow fever, [Soper] *375
Disease: See also Cardiovascular Disease;
Endocarditis; Pericarditis
disease (congenital) as cause of sudden death,
[Levinson] 167—ab
disease, diagnosis by military physicians,
[Hadorn] 1522—ab
disease, hepatorenal syndrome in, salyrgan
modifies, [Nonnenbruch] \$50—ab
Disease (Hypertensive): See Blood Pressure,
high

disease in Paris, 1155

HEART—Continued
disease, organic, 500 cases; etiologic types;
incidence, [Parson] 925—ab
disease, research fund available for by
A. M. A. Committee, 910
disease (rheumatic) and convulsive seizures,
[Foster] 1407—ab
disease (rheumatic), life expectancy for adult
with, 934
disease, sudden death in: use of aminophylline and atropine in, [Baer] 248—C; (reply) [LeRoy & Snider] 556—C
electrocardiogram during electric shock,
[Streit] 177—ab
electrocardiogram, esophageal lead in, and
myocardial infarction, [Nyboer] 167—ab
electrocardiogram, fetal, [Ward] 1325—ab;
[Bernstein] 1326—ab
electrocardiogram in coronary disease, [Sigler] 1411—ab
electrocardiogram interpretation, course in,
at Michael Reese, 153
electrocardiogram P wave and coronary dis-

at Michael Reese, 153 electrocardiogram, P wave and coronary dis-

at Michael Reese, 103
electrocardiogram, P wave and coronary disease, 93
Failure: See Heart insufficiency
in sickle cell anemia, [Klinefelter] 1005—ab
Infarction: See Heart septum; Myocardium
Inflammation: See Pericarditis
injection into, in 20 minute cardiac arrest,
[Adams & Hand] *133
insufficiency, congestive failure; ultimate
prognosis, [Dry] *263
insufficiency, conous pressure and circulation
time in failure, [Hussey] 1325—ab
Irritable: See Asthenia, neurocirchlatory
ligation of great cardiae veln for angina
pectoris, [Fauteux] 170—ab
murmurs persist after ligating ductus arterlosus, [Bournel 1333—ab
Muscle: See Myocardium
Output: See also Blood circulation
output, effect of renal extracts, [Taylor]
1244—ab
pain, paraverteal alcohol injection for,

pain, paravertebral alcohol injection for, [Perlow] 1253—ab

Rate: See Tachycardia

septum (infarcted), survival after perforation in coronary disease, [Moolten] 1251—ab Soldier's: See Asthenia, neurocirculatory

septum (infarcted), survival after perforation in coronary disease. [Moolten] 1251—ab Soldier's: See Asthenia, neurocirculatory sounds and chest sounds, 855 sounds, phonographic recording by Dr. Richard Cabot, [White] 1389—C sounds, stethoscopic records using home radio-phonograph, [Geckeler] 309—C Valves: See Aortic Valve; Mitral Valve HEARTBURN, significance; prostigmine for, [Williams] 403—ab
HEAT: See also Burns; Cold; Diathermy; Fever; Steam; Temperature; Tropics disorders, adrenal cortex extract and sodium chloride to prevent, [Böttner] 413—ab effect on gastrointestinal motor activity; hot drinks and applications in adviamic lieus, [Bisgard & others] *447 hot packs technic in Kenny treatment, [Pohl] *4129; [Daly & others] *4134 loss of, interference of, causes death in woman covered with gold paint, 568 Production: See Metabolism, basal therapeutic use, precautions to be observed, [Hibben] *1039
HEBREW: See Jews
HEDBLOOM Lecture: See Lectures
HEELS, calluses on; reddened pea sized nodules; foot strain, 418 lengthening heel cords in spastic paralysis, [Green & McDermott] *434
HEGNER, ROBERT W., death, 1150
HEIGHT: See Body height
HELENE Curtis: See Curtis
HELFERICH'S Resection: See Knee, tuberculous gonitis
HELLUM inhalation asphyxia, resuscitation in, [Birnbaum & others] *1364
HELMET: See also Armor crash, worn by motor cyclists to prevent head injury, 313
HELMHOLZ Lecture: See Lectures
HEMAGGLUTINATION: See Agglutination; Blood groups
HEMANGIOMA, cavernous, of lip, radium for, 682
of liver, [Shumacker] 1411—ab
HEMATIN, identify pigment of malaria parastice, 461—E

bsz of liver, [Shumacker] 1411-ab
HEMATIN, identify pigment of malaria parasite, 461-E
HEMATOMA, Subdural: See Meninges hemor-

HEMATOMA, Subuurar.

rhage
HEMATOPORPHYRINURIA: See Porphyria
HEMATURIA following use of heparin. [Richmond] *609
HEMIPLEGIA, from insulin "shock," [Allan & Crommella] *373
HEMICONCENTRATION: See Blood concentration

HEMOCONCENTRATION: See Blood concentration
HEMOGLOBIN, distribution in toluene-exposed
workers, [Greenberg & others] *573; [von
Octtingen & others] *579
destruction in porphyrinuria in lead polyoning,
[Kark] 1254-ab
high pressure effect on, [Okuda] 258-ab
regeneration in donors; allow 3 months,
[Fowler & Barer] *421 (discussion) 430
-ab

HEMOGLOBINURIA: See Blackwater fever
HEMOLYSIS: See Anemia, hemolytic; Jaundice, hemolytic
HEMOPHILIA, idiopathic hypoprothrombinemia, [Rhoads] 251—ab
treatment, coagulation globulin (cow's plasma), [van Creveld] 1405—ab
treatment, lyophile human plasma intravenously, [Johnson] *799
HEMORRHAGE: See also Hematuria: Hemo
philia; Purpura; Telangiectasia, under
names of diseases and organs affected
blood loss in obstetric cases, [Conn] 403—ab
control after tonsillectomy with gallic and
tannic acids, 182
control, rabbit thrombin as local hemostatic
[Lozner] 79—ab
heparin causes, from mucous membranes,
1526

in Newborn: vitamin K: prothrombin levels
See Blood coagulation
Menstrual Bleeding: See Menstruation
post extraction, coagulation globulin for,
[tan Creveld] 1405—ab
Prothrombin relationship. See Blood coaguglobulin for,

Prothrombin relationship. See Blood coagulation
release tourniquet for few minutes at 30 minute intervals, 494
Subdural See Meninges, hemorrhage
Thrombopenic See Purpura hemorrhagica
Treatment See also Hemorrhage, control
treatment, action of toad venom on bleeding
time, [Derouaux] 1166—ab
treatment, blood plasma, [Strumia & McGraw] *427
treatment, 2 methyl naphthohydroquinone diphosphoric acid ester, [Daylson] 1413—ab
vicarious, as result of cessation of prolonged
bleeding in one part of body, 630
HEMOSTASIS: See Hemorrhage, control
HEMOSTASIS: See Hemorrhage, control
MEMOSTASIS: See Hemorrhage, control
MEMOSTASIS: See Hemorrhage, control
Serum therapy (cross reference)
inject human blood in ceinac disease, [Wickström] 930—ab
inject placental blood in amenorrhea, [Halbrecht] 1015—ab
HEPARIN, dicoumarin compared with, [Quick]
1004—ab
causing bleeding from mucous membranes
1526
effect on clot retraction time, [Hischboeck]

effect on clot retraction time, [Hirschboeck]

effect on clot retraction time, [Hischboeck]
1161—ab
hematuria after, [Richmond] *609
to prevent adhesions, [Lehman] 560—ab
Treatment: See Thrombophlebitis
HEPATITIS' See Liver inflammation
HEPATOMEGALY: See Liver enlarged
HERD instinct, Trotter's theory (1916) as applied to Germany, 62
HEREDITY: See also Appendix malformation:
Cataract; Edema; Glaucoma; Telangiectasia; Xanthomatosis; etc
elliptic erythrocyte in 86 members of 3 families, [Wyandt] 670—ab
HERNIA, diaphragmatic subcostosternal, [Harrington] 409—ab
etiology, nonpenetrating abdominal trauma,
[Poer & Woliver] *11
hiatus esophageal, with angina pectoris symptoms, [Jones] 1255—ab
inguinal and crural, recurrence of, 243
rejection of selectees for, [Rowntree & others]
*1226
treatment, injection solutions, 567

rejection of selecters for, [Rowntree & others]

*1226

treatment, injection solutions, 567

umbilical, 243

watter of physical defects for limited service officers, 1146

HERZSTEIN Lecture: See Lectures

HENYLRIESORCINOL, spray to control air borne infection, [Buchbinder] *728

treatment of hookworm infection, 679, (vs. tetrachlorocthylene) [Brown] 1133—C

HEY GROVES, Professor, resigns as editor, 552

HICCUP, recurrent, dolantin intravenously for [Jessen] 674—ab

HIDRADENITIS See Sweat Glands

HIGH Blood Pressure: See Blood Pressure, high Frequency Apparatus: See Diathermy, Electric, high frequency apparatus

Pressure: See Pressure

HILLEBRAND Award: See Prizes

HIP: See also Buttocks; Pelvis; Thigh, etc arthritis, ischlofenoral arthrodesis for, [Brittain] 87—ab

care of, to prevent arthritic deformities, [Joplin & Baer] *942

Fracture: See Femur tuberculous cocitis during childhood, [Lindemann] 413—ab

HRUDIN solution, effect on thrombocytes, [Sonder] 564—ab

HISTAMINASE treatment evaluated, [Fox] 408
—ab

HISTAMINE azoprotein in allergic disease,

-ab
HISTAMINE azoprotein in allergic disease,
[Sheldon] 480-ab
desensitization, 1422
effect on blood ressels, [Yoneda] 414-ab
physical or psychic allergy, 229-E
Treatment: See Verligo, aural
HISTONE zinc insulin, [Balley & Marble] *683

HISTOPLASMOSIS, chronic ulcerative enteritis due to, [Henderson & others] *885 in child, [Villela] 1259-ab HISTORY, explorers who were physicians Livingstone and Kane, [Holcomb] 330-88; [Dr. Kane graduated from Pennsylvania) 764-88

764—SS
of Medicine: See Medicine
HITCH-HIKE, soldiers forbidden to, 542
HITTER'S Growhair, 1388—BI
HIVES See Urticarla
HOBBIES See Physicians, avocations
HODGEN Lecture See Lecture
HODGKIN'S DISEASE, diagnosis, differentiating
from metaplasia of spleen, [Reich & Rumsey] *1200
diagnosis, differentiating from primary tuber

from metaplasia of spleen, [Reich & Rumsey] *1200
diagnosis, differentiating from primary tuber culous infection, [Birkelo] *352
lymphogranulomatosis maligna in childhood, [Ferraris] 1259—ab
treatment, life expectancy after radiotherapy, excision or blops. [Stout] *968
HOFF, JOHN VAN RENSSELAER, Carlisle Barracks hall named for, 157
HOGS See Trichinosis
HOLLAND Tunnel exposure to carbon monoxide of traffic officers, [Sievers & others] *587
HOLLOWAY, J. W., Jr., director of Bureau of Legal Medicine and Legislation, 906—OS
HOLMES, OLIVER WENDELL, address to Harvard students, [Oppenheimer] 319—C
HOME See Housing
HONEY, effect on calcium refention in infants, [Knott] 84—ab
HONOLULU: See also World War II, Pacific Front

Front
Medical Society honors Dr Moorhead 241
HOOKWORM Infection' See Ancylostomiasis
HOPKINS, FREDERICK GOWLAND, on alcohol
as a food, 62
HORMONES. See also Adrenals Antihormones,
Endocrine Glands; Pitultary, Thyroid
action of spleen, Naegele's theory, [Pernoks]
*866

See Androgens, Estrogens; Gonadotro

pins; etc HORSES, Pregnant Marc's Serum: See Gonado-

tropins
Serum of See Serum
vaccination against encephalitis, [Hammon]

HOSPITALIZATION Insurance See Hospitals,

expense insurance HOSPITALS See also Clinics, Dispensaries, Sanatolium, Medicolegal Abstracts at end

saturorium, Mementegri Austracus at cha of letter M administration, natuon's health. Dr Goldwater's optimistic outlook, 468—OS American built to withstand air raids, England 1311

manu 1311
American College of Surgeons and A. M. A. cooperate on census blank, *1054
American Hospital Association Manual of Essentials or Good Hospital Nursing Service, (Council report) 1148—08; (protection of hospitals from air raids, etc) 1374

M A Council on Medical Education and Hospitals: See American Medical Associa-

Approved: See Hospitals, registered and

Approved: See Hospitals, registered and approved
Arms See also Hospitals military; Medicine and the War, World War II
alms, employment of osteopaths as interns
1177-OS
Ashe Counts, N. C. 155
autopsies in, *1065, *1066, *1068; *1069,
1498-OS

Barre City, Vt. (correction) 1310 beds, capacity where changes occurred in 1941, *1058

beds, percentage occupied, *1054; *1056, *1057; *1058

beds, percenting occupied, *1054; *1056, *1057; *1058
Births in: See Hospitals, maternity
Botkin, in Moscow recently hombed, 1304
building program, federal grants to community to assist, 391; 550, 659
casualty, 934
census, annual, *1054
Chicago Lying-In, course in obstetrics, 58
children's, statistics, *1062
commissioner, (Dr Rappleve resigns as, New York) 1151. (Dr Bernecker appointed) 1231
convalescent and rest, statistics *1062
deaths in, *1065, *1066
emergency base hospitals 984
Emergency Hospital Service, England, 551
evacuation, called to active duty 542
expense insurance. A M A Board of Trustees
view John on, \$20—E 1178—OS, 1481—OS
expense insurance Associated Hospital Services insurance. Lord Nuffield guaranty
fund, 62
expenses, minimum cost per patient day at
\$51 1144—E

expenses, minimum cost per patient day at \$1, 1144-E

expense insurance service plans, state laws on, 1479—05 eye, ear, nose and throat, statistics, *1062 facilities by states and by type of service, *1062

HOSPITALS-Continued

facilities, survey to determine, Illinois, 1378 facilities under nonprofit organizations, *1035; ***1060** 

*1060
Fitzsimons General, treatment of genorrhea, [Peterson & Beuchat] *129
general, ordered into service, 540
general, statistics, *1062
government, statistics, *1055; *1079
Group Hospitalization: See Hospitals, expense insurance
growth summary 1909 to 1941, *1058

growth, summary, 1909 to 1941, *1058 Guy's, psychiatric clinic at, 832 Harper, Detroit Base Hospital No 17 of World War I reorganized, 465 Harrard American Red Cross unit nearly com-

Harvard American Red Cross unit nearly completed, 748
Hospital for Joint Diseases, professional service building dedicated, 1232
in English speaking countries, 551
in Mexico, 1384
industriat, statistics, *1062
Infection (cross) in: See Infection, cross
Insurance See Hospitals, expense insurance
international collaboration when war is over,
551

Interns, Internships. See Interns; Intern-

ships isolation, statistics, *1062 kings County, new dispensary building, Brooklyn, 392 laboratories, requirements, 1198—OS library, requirement, 1498—OS loan for, in Chile, 159 London, (how it carries on) 661; (surse) 1154

1154
Los Angeles Counts, examination for resident physicians at, 655
Massachusetts General, (new cancer arrangement) 391; (use of other in pulmonary tuberculosis), [Beecher & Adams] *1206
Minneapolis General, Kenny treatment, [Pohl] *1428

maternity service, bitths in, *1064; 1144-E maternity, statistics, *1062
Military: See also Medicine and the War;
World War II

world War II
military, [Darnall] *002
Mount Sinal, (courses at) 302; (90 years of service) 518
New York City hospitals modify internships, 333—SS

333—SS
number, March 28, 1942, *1053
nurserles, control respirator; infection in,
[Sauer & others] *1271
Nurses. See Nurses
Nursing: See Nursing
Ohio, pellagra incidence in, [Bean & others]
*1176

*1176 Operating Room See Surgery
O'Rellis General, 542
orthopedic, statistics, *1062
Padterevski, opened, Edinburgh, 61
Patients Ste also Hospitals, expense insurneed Hospitals, expenses; and other subneeds numbers operated on in, *1064;

patients,

niti4—E
patients, reduced average stay in 1935 is
1941, *1058; 1144—E
Personnel See also Hospitals, staff
personnel, dysentery carriers, suifaguanddine
for, [Rantz & Kirby] *1268
Physicians 'See also Hospitals, staff
physicians as superintendents, number in all
hospitals, *1066
proprietary control, *1058; *1061
protection of, A H A special committee, 1774
Psychiatric 'See also Hospitals, state; and
other subheads as Hospitals, Guy's, St.
Elizabeth other sul Elizabeth

psychiatric, American Psychiatric Association standards, [Overholser] *1020 psychiatric, Central Neuropsychiatric Hospital Association, '009

Association, 909
psychiatric, increase in patients, 827-0S
psychiatric, statistics, *1062
psychiatric, treatment in U S, narcotic hospitals, 910
radiology requirement, 1498-0S
registered and approved, *1071; *1075, *1071
*1134; 1196-0S; (autopsits in), *1065, *1066, *1069; *1069; (blood and plasma banks in), *1069; (for interns, residentic and fellowships), 1119-05, (essentials in for internship), 1197-0S
registered and approved, those not in register,

registered and approved, those not in register, *1060

*1066 Residencies See Residencies Residencies See Residencies Rochester General, N. Y., cyclopropane ansitituda, [Sahler & others] *1042 St. Elizabeth, wartime problems, [Parrar]

*1033
St Francis, Wichita, (correction) 1310
St Vincent's, N. Y. unit dedicated, 1171
Santa Monica, dedicated, 517
Service. See also Hospital, expense in an ance; Hospital, maternity service; etc.
service for civilians injured as result of enemy action, 993; 1274
service in U. S., *1057, 1144—E.

VOLUME 118 NUMBER 17 HOSPITALS-Continued small, plasma preparation for, [Semost] 1414
-ab -au Staff: See also Hospitals, physicians staff, medical personnel, *1066; (reduced, London), 1311 London), 1311
staf members, recommendations regarding
military service, 300—E, 305
staff, requirement, 1498—08
staff, technical personnel, *1065
State: See also Hospitals, psychiatric
state and local government, facilities under,
*1035 *1035
state, function as educational and social agency, [Overholser] *1027
state, hospital officer as official of Emergency Medical Service, 1375
state, methods of admission, [Overholser] *1028 state, precommitment services for patients, state, precommitment services for patients, Illinois. 58
state, study of family care and parole, 154
state, typhold carrier problem at Manteno,
Ill., [Saphir & others] *964
tavation of, subject to, District of Colum
bla, 469
Tuberculosis: See Tuberculosis
veterans, legislation, 1477—OS
Victoria General, 746
War and: See Medicine and the War; World
War III War II
Wesley Hospital opened, Chicago, 655
Will Rogers Memorial, Dr. Frank Deacon
sentenced on lottery charge, 547
Williard Parker, Kenny treatment, [Daly &
others] *1433
Yale undergraduates on duty in, 764—SS
Yale-in-China, burned by Japanese, 986
HOUSING conditions, criticism of, Australia, HOUSING conditions, criticism of, Austrana, 914
rebuilding houses with glass and resins, 1384
HOUSMAN, NATHAN S, imprisoned, 309
HOUSSAY, B. A., on relations between thymus and other endocrine glands, 833
HOWE Lectures: See Lectures
HS See dichloroethylsuilfide
HUFF, GEORGE, chiropractic, theory of insurance rating, 381—E
HUMERUS, fractures of, "intramedullary nailing," [Kuntscher] 675—ab
HUMIDITY: See also Barometric Pressure dryness of mouth and, [Winslow] 1323—ab household, effect on susceptibility to common cold, 936 dryness of mouth and, [Winslow! 1325—ab household, effect on susceptibility to common cold, 936
rheumatism and, 567
therapeutic, in aborting a cold, 1525
HUNNER, GUY L, portrait of "The Musketeers of Mediche," 391
HUNNER Ulcer: See Bladder ulcer
HURST, Sir ARTHUR, on two sprue diseases and celtae disease, 1234
HUTTON, T. J., M.D., tuberculosis treatment, 1513—BI
HYDATID Disease: See Echinococcosis
HYDATIDIONI Mole: See Placenta tumors
HYDRATION: See also Dehydration
therapeutic, in alcoholic encephalopathia syndrome, [Joilliel 1248—ab
to prevent renal complications after sulfathiazole, [Winsor & Burch] *1346
HYDROA vacciniforme caused by sunlight, [Lampe] 326—ab
HYDROADENITIS: See Sweat Glands
HYDROGEN peroxide, decontamination of eyes after gas exposure, 1374
HYDROADENITIS: See Dihydrotachysterol (cross reference) HIDROTACHYSTEROL: See Dihydrotachysterol (cross reference)
HYDROTHERAPY: See also Baths
[Hibben] *1040
4-HYDROXYCOUMARIN 3-3'-methylenebis, effect on blood coagulation, [Meyer & others] 1003—ab; [Barker & others] 1003—ab; [Barker & others] 1003—ab; HYGILA: See American Medical Association HYGIENE: See also Health; Sanitation Association Argentina de Médicos Higienistas, 146 Industrial: See Industrial Hygiene Mental See Moustran Agence
Mental See Mental Hygiene
National Institute of, created, Ecuador, 550
School: See Schools
Social: See Social Hygiene
HYPERCHOLESTEREMIA: See Blood cholesterol sterol HYPEREMESIS gravidarum: See Pregnancy, HYPERCHUSIS gravidarum: See Pregnancy, vomiting of HYPERGLYCEMIA: See Blood sugar HYPERHDROSIS: See Sweat HYPERHNSULINISM: See Pancreas, aberrant HYPERKERATOSIS: See Keratosis HYPERPYREXIA: See Fever, therapeutic HYPERPYREXIA: See Anaphylaxis and Allere HYPERSENSITIVITY: See Anaphylaxis and Allergy
HYPERTENSION: See Blood Pressure, high
HYPERTHYROIDISM: See also Goiter
adolescent, [Black] 254—ab
gastrointestinal tract in, [Brown] 488—ab
hypertension and, after subtotal thiroidectomy, [Blsgrid] 1329—ab
hyperthyroiic catatonia, [Hemphill] 1333—ab
hyperthyroiic catatonia, [Hemphill] 1333—ab
hypertrichosis: See Hali, excessive
HYPOCALCEMIA: See Blood calcium
HYPOGONADISM: See Blood sugar
HYPOGONADISM: See Gonads

HYPOPARATHYROIDSM See Parathyrold HYPOPHYSIS See Pituatry
HYPOPHTOTENEMIA: See Pituatry
HYPOPROTEINEMIA: See Blood proteins
HYPOPROTHNEMIA: See Blood coag-HYPOSENSITIZATION See Anaphylaxis and Allergy
HYPOTENSION. See Blood Pressure, low
HYPOTHERMY: See Crymotherapy
HYPOTHYROIDISM. See also Cretin My vedema benign hypothyrosis, [Jarløv] 1260-ab calories predicted and observed in children, relation to [Bruch] *1292 juvenile osteochondral (chondroepiphysitis), desiccated thyroid for, [Schaefer] 667—ab sensory and motor centers in, [Enzer] 168 sevual infantilism due to, [Lisser] 1253—ab HYPOXIA See Oxygen deficiency HYRAL 246—BI HYSTERECTOMY See Uterus cancer; Uterus See Uterus cancer; Uterus excision
HYSTERIA, blindness, electroencephalographic
differential diagnosis, [Lemere] *884 IBSEN was a pharmacist, 507—ab ICE, Dry: See Carbon Dioxide, solidified ICTERUS: See Jaundice IDENTIFICATION tags, soldiers', 541 ILIOSTOMY, in ulcerative colitis, [Streicher] *431

ILLINOIS: See also Chicago

Psychiatric Research Council, 743

University of See University

Welfare Association (new name), 1378

ILLNESS See Disease

IMMERSION: See Water

IMMIGRANT Physicians: See Physicians, IMMUNITY: See under name of disease concerned
IMMUNIZATION. See also Diphtheria; Scarlet Fever, Tuberculosis; Vaccination
Combined: See also Diphtheria; Tetanus;
Typhoid, etc.
combined, Ramon's new formula for, 553;
[Ramon] 1334—ab
for European War work, 420
Intradermal, [Van Gelder] 251—ab
isommunization in fetal erythroblastosis, 143
—D. [Levine] 843—ab
of children, 1942 May Day objective, 658;
1220—E
of children under 10 years of foreign IMMUNITY: See under name of disease conof children under 10 years of age, survey, Ind , 828
IMMUNOTRANSFUSION: See Blood Transfusion IMPETIGO IMPETIGO contagiosa, sulfanilamide powder locally for, [Marshall] 410—ab contagiosa, sulfathiazole olitment for, [Winer & Strakosch] #221; [Robinson] #408—ab IMPLANTATION: See also Chorion; Spleen; MPLANTATION: See also Chorion; Spleen; Sulfanllamide technic, [Bennett & Te Linde] *1342

IMPOSTORS, Koba (Tsuneyoshi) meets the F. B. I, 823—E physician sentenced on lottery charge, Dr. Frank Deacon, 547

salesman: F S Antrim, 831

solicitor using several names (Hamilton, Stewart, Reed) 156

swindler: Latabee or Bliss, 550

IMPOTENCE, decrease of potency in man of 60, 682

nitrates and potency, 838
nostrum: Sorko, Lozinska, Sorokowski—and "Mizar," 837—BI

INCOME See Fees

Tax See Tax

NCONTINENCE See Urine

INDEX of literature on military medicine, at Wayne U, 542

Medicus (Q. C. I M.): See American Medical Association positions one (Harva) Association INDIAN Service, positions open, [Harvey] INDIANA UNIVERSITY (selects entering class earlier) 334—SS; (classes 6 days a week) 761—SS; (course in facial restoration) 764—SS 761—SS; (Course in Inter-Statement)
764—SS
INDIGENT See Medically Indigent, Physicians, Indigent
INDIGESTION, functional, [Gregg] 1014—ab
in British Army, [Hinds Howel] 87—ab
INDIVIDUALITY and science, [Blakestee] *327
INDUCTION; INDUCTION BOARD. See Medicine and the War
INDUSTRIAL ACCIDENTS: See also Workmen's Compensation; Medicologal Abstracts at end of letter M
Section, Los Angeles, 1307
INDUSTRIAL DERMATOSES, A.M. A. Section
Committee on, report, [Lane & others] *613
cutting oils, [Schwartz] 85—ab
gold plating, 935
machine oil acne, [Suga] 258—ab
solvent cause of urticaria, 1109

1551 INDUSTRIAL DISEASES: See also Industrial Dermatoses aircraft production hazards, [Russell] 410—ab alcohols, toxicity of, new law on. France, 553 aphonia in telephone operators, 857 carbon disulfide absorption in viscose rayon workers, [Lewey] 484—ab carbon monoxide exposure in traffic officers and others, [Sievers & others] *585 clinic, [Kronenberg] 648—ab conjunctina, cicatricial shrinkage in dyers, [Brückner] 1258—ab encephalonatina saturnina in minter. [Sangerenbalonatina] Dermatoses encephalopathia saturnina in printer, [San-tillan] 85-ab fluorine bone disease, [de Senarclens] 564 fluorine bone disease, [de Senarclens] 564
— ab
in railroad industry investigated by Railroad
Retirement Board, 1477—05
laster's disease, spasms in capillaries of fingers, [Schrank] 850—ab
leptospiral infection (Weil's disease) as hazard, [Stiles & Sawyer] *34
Lucitone and Vernonite toxicity, 1169
magnessum toxicity, 337
manganese poisoning, [Finn] 82—ab
trinitrotoluene hazard, [Roberts] 75.5—ab
trinitrotoluene in urine, improved Webster
test for, [Ingham] 848—ab
physicians must sign fee bill on workmen's
compensation, Ohio, 830
Pneumoconiosis: See Pneumoconiosis
polyneuritis in watchmaker, 1526
silicon and silicon halogens poisoning, 857
Silicosis See Pneumoconiosis
toluene exposure, effects, [Greenburg & others] *573; [von Oettingen] *579
zinc poisoning, [Gocher] 1012—ab
INDUSTRIAL HEALTH See also Industrial
Hygiene
A M A. Annual Congress on, (4th in Jan. Hygiene M A. M A. Annual Congress on, (4th in Jan. 1942), (program) 148—08; (proceedings) 641—08 M A. Council on. See American Medical Association Association
A. M. A. joint session with Federal Security
Subcommittee, 624—E; [Seeger] 641—ab;
(report) 1228—OS; 1470—OS
dental program, [Walls] 644—ab
Dictionary of, (Council report) 1471—OS
education (graduate) in, Iowa, 622—E
education in, [Seeger] *1017
Employees. See under Industrial Health,
workers Employees. workers workers eye injuries in Industry, National Society for Prevention of Blindness survey, 157 forum on, Conn., 743 health service for plants, Conn., 309 hearing conservation, [Bunch] *588 internship, [Lyon] 648—ab man power conservation, Conn., [Kuh] 649—ab man power conservation, Conn, [Kuh] 649
—ab
man power conservation, Conn, [Kuh] 649
—ab
medical education, clinical clerk-ship for
schior students, [Wampler] 647—ab
medical education curriculum adjusted to
problems in, [Allen] 646—ab
medical education: industrial health—separate discipline, [Hazlett] 646—ab
medical education: teaching of industrial
health, (council report) 731
medical formulary, [Lane & others] *615
medical mobilization, 622—E
Mfdical Service in Industrial medical
depti—floor plans and equipment) 117: 34;
(plant hygiene studies) 118: 818; (outline
of procedure for physicians in industry,
118: 895
medical service plans for small industrics,
[Kallski] 615—ab; [Bloom] 672—ab
nursing, Council report, 1471—OS
ophthalmology, A. M. A.-American Academy
joint committee, 61
ophthalmology, A. M. A. Section committee
report on, [Snell & others] *610
physical examination and correction of defects, [Sawyer] 641—ab; (Council report)
1412—OS
physical examination, business women national federation promote, 382—I;
physical examination under Civil Service,
[Harvey] *7:97
physicians and surgeons, American Asso lation of, 1152
Physicians Council and formed, 210
physicians, Council and formed, 210
physicians, Council and formed, 210
physicians, Council and formed, 210
physicians, Council and formed, 210
physicians, Council and formed, 210
physicians, Council and formed, 210
physicians could and formed, 210
physicians council and formed, 210
physicians council and formed, 210
physicians council and formed, 210
physicians council and formed, 210
physicians council and formed, 210
physicians council and formed and corection of formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and formed and council and Physicians Club, Cleveland, formed, 210
physicians, Connecticut Industry devote section
to, 1210
physicians, outline of procedure, 847, 400-E
physicians, Procurement and Assignment of,
(Seeley) 641 th
radioactive substances hazard to young
worlers, 1.73-F
rehabilitation clinics, Conn., 1307
research, council for, Australia, 477
research laboratories, 128-ab
San Francisco County Medical Society medical
committee to study, 747
surgery, debridement suturing and chemotherapy, [Howes] 651 ab

INDUSTRIAL HEALTH-Continued

NDUSTRIAL HEALTH—Continued tuberculosis. symposium at Saranac Lake, N Y, [Gardner] 642—ab vitamins and ultraviolet rays for men working 7 days a week, 768 vitamins for workers, indiscriminate administration. (Joint Council report) *618, 623—E; (discussion) 652—ab women available for war industries. 987 women conscripted, England, 660 work of registrants evamined for military service, [Rownfree & others] *1225, *1227 work output, effect of prescribing glasses with plus lenses on, [Tiffin] 652—ab work, relation to food, hours per week fatigue, overtume, rest, extra lunches, [11,1] *569 workers eligible for retirement to be examined, Ohio, 155 workers, health education for, [Bristol] 650—ab

workers, medical supervision, British Medical

workers, medical supervision, British Medical Association committee, 60 workers, placement, use tests for intelligence and vision, [Tiffin] 651—ab workers, protection of, war conference for, Ill., 1307

workers, syphilis test required by, 549

workers who are handicapped useful, 549,

workers with hypertensive heart disease of long duration, [Flayman] 484—ab workmen's compensation medical panel system of New York State, [Kaliski] 645—ab, [Bloom] 652—ab, 653—ab Youth Work Defense Program, 1153
INDUSTRIAL HYGIENE, American Industrial Hygiene Association, 1152 course at Harvard, 1379 division, quarters for, Alabama, 238 instruction, correlation of, with other clinical training [Cummings] 647—ab
National Conference of Governmental Industrial Hygienists, 1153
National Institute of Health, mobile unit used in, 1233

National Institute of Health, mobile unit used in, 1233
plant studies, 818
INDUSTRIAL POISONING See Industrial Dermatoses, Industrial Diseases
INFANTILE PARALYSIS See Poliomyelitis
INFANTILISM, Intestinal See Cellac Disease sevial, of hypothyroid origin, treatment with thyroid and estrogens, [Liser] 1233-ab
INFANTS See also Children, Infants Neuborn, Pediatrics, under names of specific diseases

diseases
care of, during air raids, American Committee
on Maternal Welfare instructions, 985
feeding, Clapp's Junior Foods, 819
feeding, effect of honey on calcium retention,
[Knott] 84—ab
hypertichosis in, 770
mortality, effect of improved prenatal nutrition on, [Ebbs] 1251—ab
mortality, relation to mastoiditis, [Leathart]
563—ab
neutralizing antibodies in several of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of the commitment of

premature (extreme) and persistent tunica vasculosa lentis, 736—E premature, problem of care of, 243 respirator; infection in, control at The Cradle, [Satter & others] *1271 surgical correction of congenital malformations, 1170 supilities serologies.

syphilis serologic reaction plus minus in,

NFANTS, NEWBORN: See also Fetus
born in hospitals, statistics, *1064, 1144—E
e13 throblastosis, [Javert] 1412—ab
erythroblastosis, isoimmunization in, 143
—E; [Levine] 843—ab
Hemorrhage in, vs. Prothrombin Level. See
Blood coagulation
mortality in cesare in section. [Cosgrove &

Blood coagulation
mortality in cesarean section, [Cosgrove &
Norton] *201
vagina and vulva flushed routinely with silver solutions, [Notes] 1317—C
vitamin K given to, of clinical value? [Sanford & others] *697; [Quick] 999—C
what position should it be held immediately after birth, 682
NFARCTION. See Heart septum, Kidneys,
Myocardium
NFECTION: See also Bacteria: Pneumococcus.

INFARCTION. INFECTION: See also Bacteria; Pneumococcus,

Staphylococcus, Streptococcus, etc. cerrical, atlas axis dislocation after, [Martin].

circulatory failure in, [Ebert] 324-ab; [Ben-

der] 562-ab cross, control at The Cradle, [Sauer & others] *1271

eross, in hospital wards, Royal Society of Medicine discuss, 1235 cross, in hospitals, Commission on, 464 cross, in plastic surgery ward, [Spooner] 926

eross, of wounds, Committee report, England, 395

INFECTION-Continued

cross, of wounds, mechanism of, [Willits] 922-ab droplet, from coughing and sneezing, Central

cross, of wounds, mechanism of, [Willits] 922—ab droplet, from coughing and sneezing, Central Council for Health Education publicity, 396 dropper bottles transmit, [Gompertz & Michael] *1287 Focal See Teeth, infected. Tonsils infection hospital, of wounds, prevention, War Wounds Committee report, 395 natural resistance to, sex hormones effect on, [von Haam] 1002—ab Prevention See Antiseptics; Disinfection, Germicides Sterilization Bacterial pyogenic, diabetes predispose patient to? [Williams] *1357 Pyogenic, in diabetes, predispose patient to? (Williams] *1357 Pyogenic, of shin, sulfathiazole for, [Winer & Strakosch] *221 [Pilisbury] 842—ab surgical sulfanilamide therapy in, [Veal] \$47—ab syringomyelia caused by? [Roemer] *709

847—ab
syringomyelia caused by Roemer] *709
treatment, plasma [Strumia & McGraw] *429
INFECTIOUS DISEASE See also Epidemics
Immunization Vaccination, under names of
specific infectious diseases
in Switzerland 662
INFERTILITY See Sterllit
INFLAMMATIO\ See under names of specific
disease and organs as Gallbladder, Liver,
etc

LUENZA A distemper vaccine preventive use in epidemic, [Brown] 324—ab, [Sulkin] 1410—ab INFLUENZA

A, neutralizing antibodies after, [Horsfall] 255-ab

A virus vs neutralizing antibodies in serums of mothers and infants, [Richard] 561—ab air borne infection germicidal gas for, [Buchbinder] *728 *729 734—E

B in Southern England [Lush] 1416—ab Circular Letter No 124 on control, treatment,

Commission on research organization, pur-

complication, Staphylococcus aureus pneu monin [Vichael] *869 in England, 1940-1941 [Andrewes] 88—ab,

intestinal "flu" 420 meningitis due to Pfeisser's bacillus, [Mutch]

neuritis of trochlear nerve after, use of gelatin [Gotthoffer] 568
virus, immunity to, studies in, [Doan] 1243

INFORMATION PLEASE, do you know physician—, 1019—SS See Injections, intravenous INHALATION See Anesthesia, Ovygen, I do you know what

See Anesthesia, Ovigen, Pneu-

mocontosis
INJECTIONS See also under names of specific substances

Intramedullary See Bone Marrow Intravenous See also Blood Transfusion,

intravenous, of diodrast, death after, [Gold-burgh & Baer] *1051

intravenous solution, temperature of, effect,

paravertebral, of alcohol for cardine pain, [Perlow] 1253—ab

INJURIES See Accidents, First Aid, Trauma, under names of specific organs and regions Industrial See Industrial Diserses, Workmen's Compensation

War See World War II

INOCULATION. See Immunization

INSANITY See also Dementia Parallitic, Dementia Precox, Mental Disorders, Medicolegal Abstracts at end of letter M manic depressive, fertility in persons with,

315
presentle, Alzheimer's disease, [English]
1332—ab
puerperal, [Day] 1332—ab
treatment in U S narcotic hospitals, 910
INSECTS See Bees, Fleas, Lice, Mosquitoes
INSIGNIA' See Emblems
INSTALMENT contracts and persons in military service, (Bureau report) 306
INSTINCT, herd, Trotter's theory, (1916) 62
INSTITUTE See also Cancer, Health, National Institute
Finlay Institute of the Americas at U.
Harant, 230—E, (correction) 473
for nurses by Red Cross, Michigan 1305
Graduate See Education, Mcdical graduate
of Aeronautical Sciences awards Jeffries
Medil, 550
of History of Medicine at Johns Hopkins graduate week, 1379
of Medicine of Chicago, (Humburger Lecture)
656, (Capps prize) 1150, 1374
of Physiology established by U of Toronto,
746
on Epilepsy (first annual), 909

on Epilepsy (first annual), 909 on nutrition, Michigan, 829

INSTRUMENTS See also Apparatus; Medical Supplies; Needles; etc.
eye particle remover, [Biederman] *802
maker, audiogram of, [Bunch] *590
Sterilization of See Sterilization, Bacterial
INSULAR Tissue: See Pancreas, islands of Langerhans

Langerhans
INSULIN, certification of, federal legislation, 658, 1476—OS
dosage, sulfadiazine and sulfathlazole effect on, [Styron & others] *1427; globin; crystalline unmodified; or protamine zinc compared, [Duncan] 79—ab histone zinc, globin (zinc) and clear protamine zinc compared, [Balley & Marble] *683

Hyperinsulinism. See Pancreas, aberrant sensitivity to, after splanchule nerve section, [de Takats & others] *505
"shock," cerebral damage from; electro-

"Shock," cerebral damage from; electro-encephalogram, [Alian & Crommelin] *373 tolerance test in Simmonds' disease or pun hypopituitarism, [Fraser] 1165—ab Treatment See Diabetes Mellitus

Treatment

zinc crystals and protamine zinc, (Council decision), 617
INSURANCE See also Workmen's Compensation; Medicolegal Abstracts at end of letter M

letter M
against misuse of science, 1293—ab
health (compulsory) and disability, goal of
Social Security Board, A M A statement
820—E., 1478—OS, 1481—OS
health, in New Zealand, 314
health, national scheme, Australia, 477, 915
Hospital: See Hospitals, expense insurance
life, Association of Life Insurance Medical
Directors of America, 393
hfe, Metropolitan's activities See Metropoli
tan Life Insurance Co
malpractice, for every physician using

malpractice, for every physician using physical agents, [Hibben] *1041 premiums of persons in military service. (Eureau report) 306

(Bureau report) 306
rating, chiropractic theory of, 381—E
Social See Insurance, health
INTER-AMERICAN Affairs, Office of, Latin
American program, 993
Bureau of New York Academy, 909
Scientific Conference, Mevico, 473
INTERCOURSE, Sevuri See Colius
INTERMITTENT Claudication See Claudication

tion

tion
INTERNAL MEDICINE, Mexican Congress of,
(first) 312
new 2 year program on, Okla, 658
INTERNAL SECRETION, Glands of; See En
docrine Glands
INTERNATIONAL. See also list of societies
at end of letter S
Association of Medical Museums, 992
hospital collaboration when war is over,
551

Red

Cross conference on treatment of war

Red Cross conference on treatment of war prisoners, 911
INTERNS See also Internships; Residencies.

Medicolegal Abstracts at end of letter M ambulance calls and shortage of, NY, 53 ambulance riding duties, relieved from, 903 Council of America, (pledge of allegiance) 330—SS, (merge to form Association of Interns and Medical Students) 332—SS Deferment under Selective Service: See Medicine and the War duties, record of work, clinical instruction; health, living quarters, 1499—OS; 1500—OS MANUAL, 1466—OS osteopaths as interns in Army hospitals, 177—OS training, in details of blood transfusion

training, in details of blood transfusion [Sanmartino] 849-ab

12 months', recommendations regarding military service, 300—E; 305, 633 victory carnival, 762—SS INTERNSHIPS See also Fellowships; Residence

dencies

accelerated program and, N. C., 1390
approved by A. M. A. (types of) *1063,
(revision of essentials) 1148—05, 1497—05
Hospitals approved for See Hospitals
registered and approved
industrial experience in, [Lyon] 618—ab
length of, *1668, 1498—05
New York City hospitals modify, 332—25
number of, including vacancies, *1067, *1668
services, certifying, (Council report) 1119
—05

INTERPROFESSIONAL See under Professions INTESTINAL INFANTILISM. See Cellac Dis-

ESTINES See also Appendix, Colon: Di-gestive System, Duodenum, Fices, Gastro Intestinal Trut, Mesuntery, Recture, the colonies of the site of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of the colonies of INTESTINES

breteria 961—ab bacteria, synthesis of ritamins by, 1219—F calculi and Chronic constipation 1023 Disease See Appendicitis, Collits, D'ar-rhea, Dysentery, Typhoid

INTESTINES—Continued enteritis, cause of death, Mexico, 476 "flu," mild gastrointestinal epidemic, 420 Hernia. See Hernia hydrogen ion concentration, effects of drugs, 262
Reus (adynamic) and motility, effect of heat and cold on, [Bisgard & others] *447
injury (rupture) from nonpenetrating abdominal trauma, [Poer & Wollver] *11
"irritable bowel," functional stomach and intestinal distress, 857
Irritation and liquid petrolatum, 856
Parasites: See also Ancylostomiasis; Oxyurlasis parasites in food handlers, [Wenrich] 1406 parasites role in pellagra, anemia and sprue, [Harris] 1405—ab surgery, Miller-Abbott tube in, [Lelgh & Diefendorf] *210; (effect on gangrene) ulcerative enteritis from Histoplasma sulatum, [Henderson & others] *885 INTOXICATION: See Alcoholism INTRAMEDULLARY Infusions. See See Bone Marrow
INTRAVENOUS Anesthesia: See Anesthesia
Drip: See Syphilis, treatment
Injections: See Injections
INULIN clearances in tovemias of pregnancy,
[Dill] 1326—ab
INVESTMENTS: See Defense Bonds, etc.
10DEIKON, N. N. R. (ampuls, Lakeside), 1217
10DINE distribution in vascular wall, [Masson]
116—ab INVESTMENTS: See Defense Bonds, etc.
IODEIKON, N. N. R. (ampuls, Lakeside), 1217
IODINE distribution in vascular wall, [Masson]
176—aD
IODIZED OIL, in bronchography, [Adams & Davenport] *111; 1263
IODOPHPHALEIN treatment of typhoid carrier,
[Saphir & others] *964; (also dysentery carriers) [Cutting & others] *1447
ION TRANSFER (lontophoresis) of copper for fungous infection of nails, 181
of copper sulfate for mycotic infection,
[Greenwood] 80—ab
IONTOPHORESIS: See Ion Transfer
IOWA State Medical Society, (reviews educational activities) 391, (graduate education in industrial health) 622—E
IRON, deficiency as sign of mainutrition, [Jolilife & others] *947, *948
sait concentration in throat vs immunity to diphtheria gravis, 380—E
tellurite medium for Flevner's bacillus dysenteriae, [Wilson] 325—ab
treatment shortens hemoglobin regeneration period, [Fowler & Barer] *421 (discussion) 430—ab
IRRADIATION Sickness: See Roenigen Rays
ISBELL, C. A. "Prof," fraud, 1221—B1
ISCHIUM, arthrodesis for arthritis of hip,
[Brittain] 87—ab
ISANDS of Langerhans: See Pancreas
ISOIMMUNIZATION: role in fetal erythroblastosis, 143—E; [Levine] \$43—ab
ISOPROPYL alcohol for disinfecting instruments, 94
ITCH: See Scabies
IVES Prize: See Prizes
IVY, Polson: See Rhus

J. R. 247—BI
JACKSON-Parker-Lemon Syndrome, [Reich & Rumsey] *1200
JACOBI'S polkiloderma atrophicans vasculare, [Cannon & others] *122; [Shelton] 664—C
JACOBSON, EDWARD F., chiropractor sentenced, 239

JACOBSON, to technique and page 1170 JAEGER series for testing near vision, 1170 JANEWAY Lectures: See Lectures JAPANESE Chinese War: See Chinese-Japanese War

Nar economic resources of, 546—OS illicit opium traffic regulations for Japanese soldiers, 736—E rice wine (saké), liver cirrhosis from, [Naka-hara] 564—ab Type Encephalitis: See Encephalitis, Epi-demic

Type Encephalitis: See Encephalitis: demic demic U.S. War: See World War II, Pacific Front JAUNDICE, catarrhal icterus epidemic, hematology, [Zlegler] 673—ab etiology, trinitrotoluene, [Evans] 848—ab hemolytic congenital, splenectom; in, [Pernols] *865 obstructive, from right kidney disease, [Derrah] 406—ab peritoneoscopy—its application, [Hamilton]

668-nb

668—ab Postoperative, effect of intraperitoneal sulf-auliamide, [Jackson & Coller] *194
"pseudocholangiopathie" form of coronary thrombosis, [Tapella] 1522—ab
spirochetal, Well's disease, [Wilen] 1411—ab
spirochetal, Well's disease as occupational hazard, [Stiles & Sawyer] *34
spirochetal, Well's disease, positive agglutina-tion tests in, [Packchanian] 256—ab

JAWS: See also Gums; Teeth care of, to prevent arthritic deformity, [Joplin & Baer] *941

Care Dt. 10 prevent aritritic deformity, [Jopiin & Baer] *4941

management of fractured teeth and alveolar process, 494

JEFFERSON Medical College, Cardeza chair in hematology, 156

JEFFRIES Prize See Prizes

JEJUNUM Fistula: See Pistula

JEWS Kupat Holim, the sick fund of the general federation of Jewish labor, 912; 1509

physicians under Hitler's rule, 1382

JOHNS HOPKINS University, (to hold summer sessions) 761—SS; (various activities) 1020—SS, (Institute of History of Medicine) 1370

JOINT See also Arthritis; Atlanto-Occipital Joint, Elbow, Hip, Wrist; etc.

of, often followed by *1040

preventive measures,

preventive measures,

Surgers See Arthrodesis; Arthroplasty
Tuberculosis See Arthritis, tuberculous
JORDAN, CHARLES B, BOOK OF TRIBUTES
to, 328
JOURNALS See also Newspapers
A M A periodical lending service, 1464—OS
A M A publications See American Medical Association, journals
American Review of Tuberculosis summaries
in Spanish, [Stice] *237
Annals of Surgery to appear in Spanish,
1331

Annals of Surgery to appear in Spanish, 1331

Biological Abstracts, Science, reduced rates to South America, [Stice] *237

British Journal of Surgery editor, Professor Hey Groves resigned, 552

Connecticut Industry, section for industrial physicians in, 1230

fraudulent magazine solicitor, 156

Hygela See American Medical Association Journal of National Malaria Society, 311

Journal of National Malaria Society, 311

Journal of National Malaria Society, 311

Neurology, 1454—E

Ophthalmologica Ibero-Americana, 61

Revista do Instituto Adolfo Lutz, 1310

scientific, conservation urged by A L A Committee, 746

Virginia Medical Monthly to publish laws, 830

War Medicine to be published monthly, 906

—08, 1463—08

JUDD Lecture. See Lectures

JULY Fourib See Fourth of July

JURISPRUDENCE, Medical. See Medical Jurisprudence

К

KAHLENBERG Laboratones, bichloroacetic acid for shin lesions, 856
KAHN, GUSTAY M, medical officer prisoner of war, 1309
KAHN verification test, [Chargin] 669—ab
KANE, ELISHA KENT, famous explorer—also a physician, [Holcomb] 330—SS; (graduated from U. of Pennsylvania) 764—SS
KAYSEEMO Company, 837—BI
KELLOGG, JOHN HARVEY, 90th birthday 908
KENNY Method: See Poliomyelitis, treatment KERATITIS intrauterine, 420
KERATOLYSIS exfoliativa of hands and feet, 1421

KURATOLYSIS exfoliativa of hands and feet, 1421
KURATOSIS, hyperkeratosis foliucularis similar to pityriasis rubra pilaris, 1526
KEROSENE, lethane in, for pediculosis, [Mac-Haffle] 1251-ab
KETOSIS See also Acidosis diabetic, intravenous sodium bicarbonate therapy in, [Owens] 670-ab
KETOSTEROID assay in urine in Simmonds' disease, etc. [Fraser] 1165-ab
KEYSSER, FRANZ, death, 1313
KINDEYS See also Urinary System
blood flow in hypertension, [Chasis] 324-ab
blood flow in hypertension, [Chasis] 324-ab
blood flow in hypertension, [Chasis] 324-ab
blood flow in tovernias of pregnancy, [D II]
1326-ab
calculi formation relation to sodium bicarbonate therapy, 1422
Calculi from Sulfonamides: See Urinary
Tract calculi
changes in yellow fever, [Soper] *37,5
complications after sulfathiazole [Winsor]
& Burch] *1346
cyst, encapsulating hemorrhagic, after innury years before, [Farrell & Young] *711
Disease See also Kidneys, lesions; Pyonephrosis
disease, bismuth stomatitis and albuminuria,
[Peters] 1270-ab
disease from mapharsen, [Levin & Reddie]
*359
disease, hypertension in children, [Killian]

disease, hypertension in children, [Killian] 841—ab

941—ab
disease of right, cause of obstructive jaundice,
[Derrah] 406—ab
effects of aluminum hydroxide on phosphorus
absorption, [Freeman] 838—C
excision for calculous promephrosis, proureter 17 years later, [Davison] *137
excision for hypertension, [de Takats & others]
*501

KIDNEYS—Continued excision for renal tuberculosis, pregnan after, [Scherer] 673—ab excision in hypertension from unitateral corpression, [Farrell & Young] *711 extracts, effect on cardiac output of angloton inhibitor, [Taylor] 1244—ab extracts, pressor (renin) and antipresso (Council decision), 617 extracts, thermal effect on guinea pla [Ezichis] 1244—ab extracts, to control hypertension, [Murph 1225—ab function, ductus arteriosus ligation affect

1243—2b function, ductus arteriosus ligation affec [Bourne] 1333—ab function test, creatinine (plasma) determin tion. [Arkin] 169—ab function test in Addison's disease, [Keple 1404—ab

function test in Addison's disease, [Keple 1404—ab function test, mineral water effect of [Muether] 1411—ab function test, Sodeman-Engelhardt using potention for infarction (bilateral), hypertension in, [Prin metal & others] *11 insufficiency after crush injury from fall débris, [Maitland] 411—ab; (in obstetric 911; 1311 insufficiency, hepatorenal syndrome, salyrg modifics, [Nonnenbruch] \$50—ab ischemic, amino acid metabolism in, \$99—lesions from sulfathiazole; sodium bleart nate to prevent, [Climenko] 484—ab lesions, pathogenesis in Bright's disca [Blackman] 475—ab lesions (unilateral), in juvenile hyperte sion, [Powers & Murray] *600; (discussion) 608
Pelvis' See Pyelonephritis
Sclerosis' See Nephrosclerosis sulfaguandidne absorption, exerction, [Belin 1011—ab]

sulfaguanidine absorption, exerction, [Relin 1011—ab surgery (blopsy, omental or muscular graf for hypertension, [de Takats & othersy *5 surgical, etiologic role in hypertensio [Braasch] 1251—ab tuberculosis, pregnancy after nephrectomy for [Scherer] 673—ab KITCHEN Utensils: See Cooking and Eatl Utensils

Utensils

Utensils

KNEE: See also Patella
deformity, how to prevent in arthritis, [Jond
& Baer] *942; (knee-push machine) *9
deformity. Knock knees in young child, 182
osteoarthritis of, massage for, 1170
tuberculous gonlits, Helferleh's arch shap
resection in, [Helferleh] 673—ab
KNOCK knees in young children, 182
KNOPF, SIGARD ADOLPHUS, medical librar
given to Army Library, 832
KOBA, TSUNEYOSHI, meets the F. B. I. 823—
KOCH'S Synthetic Antitovins: "1:4 Benz
quitone" or "Bq." 734—E
cancer treatment meets the law, 1373—E
KONGOLENE, 163—BI
KRUKENBERG'S Tumor. See Ovary tumors
KUPAT Hollm, sick fund of general federatio
of Jewish labor, 912, 1509

LABEL, "caution statement" for thiamine h. drochloride, (Council decision) 617
Federal Food, Drug and Cosmetic Act an (Council decision) 617
statement of animal sources, (Council decision) 618
LABOR See also Abortion; Cesarean Section Hospitals, maternity; Obstetrics; Puerprum

rium
Ancethesia in: See Anesthesia
blood loss in, [Conn] 403—ab
complications, severe reaction to dried plass
transfusion [Polayes & Squillace] *1050
"crush syndrome" in, 911
delivery of trunk after head delivery, 936
paraldehyde or benzyl alcohol as cause
fatality in primipara, [Specrt] 66—C
phiebitis after former childbirth; occu
again" 1264
Premature: See also Infants, premature
premature and generalized rash; use of r

Premature: See also Infants, premature premature and generalized rash; use of v tamin E and progesterone, 91
Psychosis after: See Insunity, puerperal what position should infant be held in immediately after birth; 682
LABORATORIES See also under specificames as Der-Mo-Tople, Faultiess; Scient Laboratories, Washimston Health alds in diagnosis of neurotropic virus disease, 55
aburoused for premarital examination to state

eases, 55
approved for premarital examination by state
[Forster & Shaughness] #793
Commonwealth Serum, Australia, 913
in hospitals, requirements, 1498—OS
industrial research, 528—ab
Maryland Association of, 908
ophthalmology research, at U. of California
153

technicians, number in all hospitals, #1065

LABORATORIES—Continued technicians, schools for, approved, *1135; (list of) *1138-*1143; (Council report) 1149—0S; 1497—OS workers, accidental infection with typhus, [Findiax] 1165—ab

LACQUERS, chemical analysis, [Greenburg & others] *573 effects of toluene exposure, [Greenburg & others] *573, [von Octtingen] *579

Nail See Nails, pollsh

LACTATE, Ringer's Solution, N. N. R. (description) 226, (devirose 5% W/V in) 227

LACTATION: See also Milk, human disorders, synthetic estrogens in, [Aienis] 1417—ab

Dypophysis and, [Berblinger] 1334—ab LABORATORIES-Continued disorders, synthetic estrogens in, [Atenus]
1417—ab
hypophysis and, [Berblinger] 1334—ab
hypophysis and, [Berblinger] 1334—ab
LADDER wire splints used in Army, 1169
LADY Lydia Female Capsules, 318—BI
LAENNEC'S Cirrhosis. See Liver cirrhosis
LAMBLIASIS. See Glardiasis
LAMERSS: See Claudication
LAMINAGRAPH, diagnosis of atlanto-occipital
joint lesions, [Jostes] *353
LAMPS See Lighting, Suniamps, Ultraviolet
Rays, lamps
LANE Lectures See Lectures
LANGERHANS Islands See Pancreas
LANGUAGE. See also Terminolog;
Portuguese, for Brazilian press, 831
study of, by North and South American
physicians, [Stice] *236
LANSING Strain of Virus See Pollomyelitis
LAPHAY, ANNA, portrait 1503
LARREEL J, swindles physicians, 550
LARREY'S SPACES, subcostosternal herma
through, [Harrington] 409—ab
LARYAN: See also Epiglottis. Vocal Cords
stridor, in hypocalcemia, dihydrotachysterol
for, [White] *136
LASTER'S disease, spasms in finger capiliaries,
[Schrank] \$50—ab
LATIN AMERICAN Congress for Criminology,
(second), results of, 397
Congress of Plastic Surgery, (second) 394
students at Columbia, 764—SS
LATRINES See Toilet seat
LAUGHING and petit mal, 94
LAUNDRY soaps as detergents, [Lane & Blank]
**808, *\$11, (irritating properties) *\$17
LAWS AND LEGISLATION, A M A Board
of Trustees on disability insurance and
hospitalization payments, 820—E, 1478—OS,
1481—OS
A M. A Bureau of Legal Medicine and Legslation: See American Medical Association 1481-OS 1481—OS
A M. A Bureau of Legal Medicine and Legislation: See American Medical Association
federal and state (weekl) summary), 237
—OS, 398—OS, 390—OS, 467—OS, 545
—OS, 741—OS, 826—OS, 988—OS, 1229
—OS, 1366—OS, 1377—OS, 1501—OS
federal, Bureau summary, 1476—OS
Federal Food, Drug and Cosmetic Act under Federal
Harrison Naicotic Act See Harrison Nai
cotic Act cotic Act
medical advertising regulated by, Rio de Jane medical advertising regulated by, Rio de Jane iro, 1235
Soldiers' and Sallors' Civil Relief Act to protect rights of those in service, 306 1478—08
state, Bureau summary, 1478—08
state, premarital evamination, [Forster & Shaughness] *780, 1479—08
Violation of See Medical Jurisprudence, Medicolegal Abstracts at end of letter M
Viranua Medical Monthly to publish laws, 830 Workmen's Compensation Acts See Workmen's Compensation, Medicolegal Abstracts at end of letter M
LEAD' See also Medicolegal Abstracts at end of letter M
in foods, tolerances for, Council report, 1469
—08 in Urine. See Urine metabolism, calcium effect ou, 142—E poisoning, encephalopathia from, in printer, [Santillan] 85—ab poisoning, porphyrmuria in, [Kark] 1254—ab LEADERSHIP, 1195—ab LECTURES, Atlanta Clinical Society Lectureship, 743
Bacon, 743
Ballin, [Elman] *1265
Beaumont, 636
Bell, 547 Beaumont, 636
Bell, 547
Belgs Memorial, 909
Carman, 1308
De Lamar, 470
Erans Memorial, 58, 636, 1504
Fenger (sivth), 391
Flevner, 745
Graduate See Education, Medical graduate
Hamburger (first), 656
Harrey, (fourth) 1308
Hedblom, 1378
Hedblom, 1378
Helmholz (first), 549
Herzstein, 238
Hickev, 1504
Hodgen, 59
Howe, of Ophthalmologs, 1150

LECTURES—Continued Janeway, 1231 Judd, 59 Judd, 59
Lane, 990
Lister, 154
McArthur, 470
McDowell (Ephraim), third, 1022—SS
Miller Memorial, 991
New York Academy of Medicine for public,
59, 909 New York Academy of Medicine for public, 59, 909
popular science talks, Philadelphia, 471
public Sunday medical, Buffalo, 1231
Rose (Mary Swartz) first, 830
Selman Memorial, 909
Sewall, 547
Sigma XI, 1021—SS
Sommer Memorial, 910
Springfield Medical Club, 990
Stewart Memorial, 992
Thomas Oration 658
LEGAL MEDICINE See Laws and Legislation Medical Jurispiudence, Medicolegal Abstracts at end of letter M
Responsibility See Malpractice
LEGALURE, 1388—BI
LEGISLATION See Laws and Legislation
LEGS See also Femur, Foot, Hip, Knee Amputation See Amputation
developer, "Legalure," 1388—BI
pains in boy, 261
"shin splints," 1339
Ulcers See Utcers Varicose Veins
LEIOMYOSARCOMA of prostate, [Prince] 1010
—ab
LELAND, ROSCO G. (on Health and Medical LEIOMYOSAIRCOMA OF prostate, [13,110,2]

-ab

LELAND, ROSCO G., (on Health and Medical Committee of Selective Service), 906-OS (service in the war effort) 1481-OS, 1484-OS 1486-OS

LEMON-Jackson Parker Syndrome, [Reich & Rumeal] *1200 LUMON-Jackson Parker Syndrome, [Reich & Rumsey] *1200

LENS, CRYSTALLIND, persistent tunica vasculosa lentis, 736—E
Opacity of See Cataract

LUMSES See Glasses

LUPROSY in Brazil, 1236
in South America, 63
treatment, solid carbon dioxide plus gold in Estonia, [Paldrok] 89—ab

LUPTOSPIRA Infection See also Jaundice spirochetal infections as occupational bazard (Stilog & infections as occupational hazard, [Stiles & Sanjer] *34 Sanyer] *34
morsus muris, rat-bite feyer, [Larson] 86—ab
LCTHANE See Pediculosis
LEUKEVIIA, diagnosis, differentiating from
splenic metrplasia, [Reich & Rumsey] *1290
lymphatic clinical and hematologic recogni
tion [Wiseman] *100
lymphosarcoma (lymphatic), [Bethell] *95
lymphosarcoma curable? [Stout] *968
tovic reactions to sulfapyridine, [Goldbloom]
486—ab 486—ab treatment, radioactive phosphorus, 1026 LEUKOCYTES, basophil, diagnostic value, [Holmgren] 258—ab Count See also Agranulocytosis Leukemia count in toluene exposed, [Greenburg & others] *573, [von Oettingen & others] *779 granular changes in, in surgical operations [Boman] 490—ab immature, in agnogenic myeloid metaplasia of spleen, [Reich & Rumsey] *1200 phagocytic power increased by februle temperatures 1371—E
LEWIS, THOMAS, Royal Society award Copley Medal 659 Medal 659 LEWISITE, hydrogen peroxide for eyes after exposure to, 1374

LIABILITY See Malpractice
LIBIDO See Aphrodisiae
LIBBARIANS See under Library, Medical
Record Librarians Record Librarians
LIBRARY See also Bibliotheca; Books, Index, Journals, Newspapers
American Library Association, Joint Committee on Importations, 1461–08
A M A See American Medical Association facilities for soldiers in camps, 1375
facilities in hospitals approved for internship, 1498–08
Medical Library Association, 1506
number of librarians in all hospitals *1065
de Schweinitz Memorial Library, [Purves]
1158–C, 1380
Stamm (Martin), given to Toledo Academy of de Schweinitz Memoriai Library, [Purves]
1138—C, 1350
Stamm (Martin), given to Toledo Academy of
Medicine, 392
U S Army Medical, S32, 985 1476—OS
Updegraff (H L), on plastic surgery bequeathed 547
LICE infestation, lethane in kerosene for, [MacHamel 1251—ab queatnen 347 E infestation, lethane in kerosene for, [Uic-Haffie] 1251—ab Haffle] 1251—ab precautions against louse borne typhus fever, 532 LICENSURE See also Medical Practice Act, State Board accelerated medical course and memorandum on, 986
on, 986
A. M. A. Annual Congress on 303—E, (program), 308—OS
Czech examinations in London, 660
graduates after accelerated courses eligible for, Calif. 1378

LICENSURE—Continued
of emigré physician in America, 1941 California Law, (correction) 394
of forcign physicians in Britain, 474; 600
restrictions on examining couple before marriage, (Forster & Shrughness)] *794; *195
revoke license of Dr. McAlpin for practicing with chiropractor, 656
Stammer (E. L.) exonerated, 831
LICHEN planus of mouth, 855
LIDES. See also Eyelids
LIFE: See also Eyelids
LIFE: See also Death
Duration' See also Old Age
duration, longevity of physicians; Class of 1900 committee on, 1299—II
duration, radiation effect on in breast cancer, [Meland] *274
expectancy after splenectoms, 1340
expectancy after freatment in lymphosarcoma, [Stout] *968
expectancy for adult with rheumatic heart disease, 934
expectancy in cervical cancer of uterus, [Morton] *271
expectancy in congestive heart failure, [Dr.]
*264
expectancy, Metropolitan's, real tables ex-*264

expectancy, Metropolitan's, real tables exceed hypothetical, 57—08

Insurance See Insurance, life

LIFE BUOY, sensitivity to, 1169

LIGHT See also Lighting

Adaptation to: See Eyes accommodation sensitivity from petroleum products; use of sun screen olniments, 769

skin disorders caused by sunlight, [Lampe] 326—ab skin disorders caused 2, 326—ab
LIGHTING, electric, germicidal unit, to control
cross infections in nurser), [Sauer & oth
ers] *1271
"fluid," hazard from incandescent mantles, 1373—E
LILLY, Ell & Co, Award presented to Dr. Pappenheimer Jr, 310, (correction) 473
Award in biochemistry to Dr. E A Evans,
Jr, 1307
LIMBS attificial, Handbook on Ampurations,
1145—E LIMBS attinenal, Invasional and Intermittent LIME Burns See Calcium oxide LIMP See Claudication, intermittent LIP See Lips LIPIDS See also Fat, Oil deficiency in food ration, France, 475 Pneumonia due to See Pneumonia, lipid LIPIODOL for intratracheal injections relatively nonirritating, 680 LIPOID See Lipids LIPOMA from sigmoid flexure, spontaneous exputsion, [Manheim & Peskin] *1214 multiple, 494 LIPS See also Harelip cancer of lower, [Howes] 1327—ab fibrillation and tremor, [de Jong & Simons] *702 #702 dissure of 3 years' duration, 682 tumor, cavernous hemangioma, radium for, 682 LIQUOR, Alcoholic LIQUOR, Alcoholic See Atcohol
LISSAUER type See Dementia Paralytica
LISTER Lecture See Lectures
LITERATURE. See Books, Journals, Language, Newspapers, Terminology
Diction, Rhetorical Errors See Terminology
LITHIASIS See Calculi (cross reference)
LITTAUER Foundation See Foundations
LIYER See also Bile Ducts
cancer, roentgen diagnosis, [Schatzki] 272
—ab
Carter's Liver Pills dermatitis from. ICon-See Alcohol Carter's Liver Pills, dermatitis from, [Con-roy] *1449 ros] *1449
changes, estrogens produce, [MacBride &
others] 1003—ab: *1278
changes in yellow fever, [Soper] *275
cirrhosis and pernicious anemia, [Hotz] 928
—ab cirrhosis and pernicious anemia, [Hotz] 523—ab
cirrhosis by furfural (Japanese saké), [Nakahara] 564—ab
cirrhosis, choline chloride and low fat cho
lesterol diet in, [Broun] 1103—ab
cirrhosis, Lunnec's, [Wuhrmann] 927—ab
cirrhosis, serum protein in, [Post] 1251—ab
cirrhosis vs diet, 853
congested, hepatorenal syndrome in, salygan
modifies, (Nonnenbruch) 850—ab
damage from intraneritioneal sulfanilamide implantation [Jackson & Coller] *191
damage, repair of, [Rasidin] 841—ab
deficiencies in pernicious anumia, 1025
degeneration (fatty) in pregnancy, destrose
and transfusion for, [Whitacre & Fanz]
*1358
Discase
See also Jaundice (1974) [157—ab Disease See also Jaundice disease, avitaminosis A in [Wohl] 667-ah disease, nostrum Phalene and Burtone, 217-218 d-Bf
desas, serum proteins in electrophoresis
determination, [Gray] 1723-ab
disorder, night bilindness as symptom, [Hasel,
Klünder] 850-ab
enlarged from toluene exposure, [Greenlurs
A others] *573
enlargement in diabetic children, [Boyd A
others] *694

Volume 118 Number 17 LIVER—Continued
extract for nutritional macrocytic hyperchromic anemia, [Moore] 1161—ab
Extract (Injectable) U. S. P.-Endo, 141
extract injections for mucous colitis, 1525
feeding 2 per cent pig liver prevents congenital
malformations, [Warkany] 1602—ab
function test; response to vitamin K, [Kark]
1257—ab glutathione content, pilocarpine effect on, [Izaki] 414—ab glycogen depletion in, as cause of acidosis, [Mirsky] *690 [Mirsky] *699
inflammation (chronic) in young persons,
[Abramson] 930—ab
inflammation (subacute), plasma therapy,
[Strumia & McGraw] *429
insufficiency, role in pellagra, anemia and
sprue, [Harris] 1405—ab
involvement in catarrhal icterus epidemic,
[Ziegler] 673—ab
metin deposited in. vs. acacia. [Hartman] [Ziegler] 673—ab
pectin deposited in, vs. acacia, [Hartman]
1161—ab
Purified Solution N. N. R. (Drug Products),
49; (Merrell) 227; (Lakeside) 1451
toxicity of liver of polar bear and of other
arctic animals, 337; (reply) [Sutton] 1026
Treatment: See Anemia, Pernicious; Liver
extract; Liver Purified Solution
tumor, hemangiona, [Slumacker] 1414—ab
Living: See Life
Conditions: See Housing
Livingstone, David, famous explorer a
physician, [Holcomb] 330—SS
LOAN Fund: See Students, Medical
LOCKJAW: See Tetanus
LONG ISLAND College (symposium on military
medicine) 147; 333—SS; (goes on 3 year
plan) 761—SS; (sypillis symposium) 830;
(visiting professorship established) 1151
LONGEVITY: See Life duration
LORDOSIS: See Spine curvature
LOUISIANA State University, (students apply
for Army and Navy commissions) 334—SS;
(graduation in February) 762—SS; 1020
—SS; (The Circle) 764—SS; 1021—SS;
(Society of Medical Sciences) 1022—SS
LOUISVILLE, University of: See University
LOUPING ILL, diagnosis by complement fixation test, [Casals] 255—ab
LOUSE: See Lice
LOYOLA University (war effort) 760—SS
LOZINSKA and "Mizar," 837—B1
LUCITONE, toxicity of, 1169
LUDWIG'S Angina: See Angina
LUNCHES, Between Men1: See Food
School: See Schools
LUNCS: See also Pleura; Respiratory System
abscess, cysts, collapse, differentiating from
tuberculosis, [Birkelo] *352
anatomy (structural) use in bronchography,
[Adams & Davenport] *115
Aspiration of Olly Medicaments into: See
Pneumonia, Ilpid
inuries (blast) [O'Reilly] 175—ab; 898—E;
[King] 1413—ab
bronchlectans in childhood. follamond & Van pectin deposited in, vs. acacia, [Hartman] 1161-ab

injuries (blast) [O'Reilly] 175—ab; 898—E; [King] 1413—ab tring 1432-au bronchiectasis in childhood, [Diamond & Van Loon] *771 calcified lesions, epidemiologic study, [Oison]

calcified lesions, epidemiologic study, [Olson] 256—ab cancer, [Halpert] 843—ab cancer (bronchlogenic) and asbestosis, [Holleb] 1248—ab cancer of long duration, [Goldman] *359 cavities: See Tuberculosis. Pulmonary Collapse: See Tuberculosis. Pulmonary Collapse: See Tuberculosis and atelectasis, [Westermark] 90—ab collapse, "reversible" and "Irreversible" atelectasis, [Jacinto] 325—ab cyanotic chronic bronchopneumopathy, [Fernandez Pontes] 412—ab cystic disease, use of. poudrage in, [Myers] 1324—ab Disease: See also Bronchopneumonia; Influenza; Pneumoconiosis; Pneumonia disorders (acute), roentgen diagnosis, [Pires de Campos] 1016—ab Embolism of Pulmonary Artery: See Embolism of Pulmonary Artery: See Embolism, pulmonary fibrosis after x-ray irradiation to chest for cancer, [Widmann] 1327—ab Fistula: See Fistula "Iron Lung": See Respirators rejection of selectees, [Rowntree & others] *1226 roentgenoscopy; spot roentgenography, [Stiepim] 1328—ab

roentgenoscopy; spot roentgenography, [Stiolm] 1328—ab
surkel removal of involved lobes in bronchiectatic children, [Diamond & Van Loon]
*777; *778

Tuberculosis of: See Tuberculosis, Pulmon-

ary
tularemia, [Kennedy] *781
tumors in apex region, [Stein] 1252—ab
tumors, superior sulcus, [White & others]
**862: [Stein] 1252—ab
Vital Capacity: See Vital Capacity
LUPUS erythematosus, bismarsen for, [Welss]
669—ab
LYDEN Harrower, decrease of potency in man
of 60. 682

LYGRANUM, diagnosis of lymphogranuloma venereum, [Palmer & others] *517; 537—E LYMPH flow, 1026
LYMPHATIC Leukemia: See Leukemia LYMPHATIC SYSTEM: See also Mononucleosis, infectious cervical adenitis, atlas-axis dislocation after, [Martin] *874

cervical adentits, atlas-axis distocation area, [Martin] *874 cervical adentits (suppurative), treatment, [Decing & Brennemann] *1176 infections of hand via. [Grodinsky] 1164—ab mesenteric nodes involved in histoplasmosis, [Henderson & others] *888 suppurative adentits, sulfadiazine and sulfatinizole for, [Styron & others] *1424 tuberculosis (primary), x-ray diagnosis, [Birkelo] *350

tuberculosis (primary), x-ray diagnosis, [Bir-kelo] *350
LYMPHEMIA with and without leukemia and leukosarcoma, [Wiseman] *100
LYMPHOCYTE count, in toluene-exposed, [Greenburg & others] *573; [von Oettingen & others] *575; [von Oettingen & others] *102
LYMPHOGRANULOMA VENEREUM, diagnosis, Frei test; virus isolation; new antigen lygranum, [Palmer & others] *517; 537—E infection of rectum, sulfaguanidine for, [Canizares] 81—ab; (also sulfanilamide) [Palmer & others] *517 ophthalmitis, sulfadiazine in, [Oliphant &

ophthalmitis, sulfadiazine in, [Oliphant & others] *973
LYMPHOGRANULOMATOSIS: See also Hodg-

LYMPHOGRANULOMATOSIS: See also Hodg-kin's Disease
maligna in childhood, [Ferraris] 1259—ab
LYMPHOSARCOMA cell leukemia, [Bethell] *05
curable? life expectancy after radiotherapy,
excision or biopsy, [Stout] *968
treatment, radioactive phosphorus, [Kenney]
1014—ab

1014—ab with and without lymphemia, [Wiseman] *101 LYON, ELIZABETH, death of mother of first male quintuplets in America, 391 LYOPHILE human plasma intravenously injected in hemophilia, [Johnson] *799 lyophilized convalescent peritonitis pooled plasma, [Bower & others] *1284

McALPIN, ROBERT B., license revoked for practicing with chiropractor, 656 McARTHUR Lecture: See Lectures McDOWELL, EPHRAIM, Jane Todd Crawford Memorial, 656

MACHINELESS Oil Wave, Helene Curtis, 246

MACHINELESS Oil Wave, Helene Curits, 246

—BI

McLEAN Award: See Prizes
MADAME, trade names beginning with "Madame": See under surname

MAGAZINES: See Journals
MAGGOTS, Orr method for wounds and compound fractures, [Orr] 917—C

MAGIC OIL Company and Carl G. Schnepel,
1513—BI

MAGNESHIM suifate effect on thromborytes.

MAGNESIUM sulfate, effect on thrombocytes, [Sonder] 564—ab Sulfate Treatment: See Pregnancy, vomiting

MAIDS: See Domestic Servants
MALARIA, control, Buenos Aires, 994
in Mexico, 476
National Malaria Society, its new nan
Journal of National Malaria Society, 311
parasite pigment identified as hematin, 461 parasite pigment identified as hematin, 461—E prophylaxis; treatment, quinine conservation order (M—131), 1455 prophylaxis; treatment, regulate sale of qui-nine, Argentina, 397 therapeutic, center established, Buenos Aires, 394

therapeutic, combined with arsenicals or mapharsen, [Dattner] 1249—ab therapeutic, inoculation through sternal bone marrow, [Quaettin] 1335—ab therapeutic, sulfathiazole as antimalarial, [Schwartz] 559—ab treatment in soldiers issued by British War Office, 747
MALE: See Eunuchoidism; Man Power; Men; Spermatozoa
Hormones: See Androgens

Spermatozoa
Hormones: See Androgens
Impotence: See Impotence
MALFORMATIONS: See Abnormalities; De-

MALFORMATIONS: See Abnormalities; Deformities
MALIGNANCIES: See Cancer; Sarcoma;
Tumors, malignant; etc.
MALINGERING, electroencephalography to detect false blindness, [Lemere] *881
MALNUTRITION: See Nutrition
MALONIDE, W. F. Koch's, 734—E
MALPRACTICE: See also Medicolegal Abstracts at end of letter M
claims, how physician should safeguard himself, [Hibben] *1038
MALTA FEVER: See Brucellosis
MAMMARY GLANDS: See Breast; Lactation

MAN: See Men
MAN POWER, conservation of, in Connecticut,
[Kuhl] 649—ab of nations at war, males aged 18-35, 464
registrants available for military service,
[Rowntree & others] *1226
MANDEVILLE, FRED, fraud, 1241—BI
MANDIBLES: See Jaws
MANGANESE, poisoning, industrial, [Flinn]
82—ab

MANGANESE, poisoning, industrial, [Film]

82-ab

MANG DEPRESSIVE Insanity: See Insanity

MANIPULATION: See Joints, deformed

MANNIPULATION: See Joints, deformed

MANNIPULATION: See Joints, deformed

MANSIPULATION: See Joints, deformed

MANSON, O. T., "Dr.," 164-BI

MANUFACTURERS: See also Pharmaceuticals

Association of Connecticut, (conservation of

man power) [Kuh] 649-ab; (form on

health in industry) 733; (rehabilitation

clinics) 1307

MAORI, New Zealand, trachoma among, 993

MAPHARSEN, headaches after, in mother; plus

minus serologic reaction in infant, 770

toxic effects, [Levin & Keddle] *368

Treatment: See also Syphilis

treatment: See also Syphilis

treatment combined with malaria, [Dattner]

1249-ab

treatment combined with Indiata, posture, 1249—ab
MARCELL Mineral Laboratory, 318—BI
MARCES Serum (Pregnant): See Gonadotropins
MARGARINE: See Oleomargarine
MARGOLIN, THEODORE—a modern proteus, 1388—BI
MARINE Biological Library receives grant from Carnegie Corporation, 392
MARINE Foundation: See Foundations
MARRIAGE: See also Birth Control; Coltus; Familia, and hereditary cataract, 1421
in Friedreich's ataxia—exercises for ataxia, 770
in late congenital syphilis, 1339
premarital examination laws in U. S., [Forster – ռ հ

MARYLAND Association of Medical and Public Health Laboratories, 908
University of: See University
MASSAGE for osteoarthritis of knees, 1170
MASSAGIC, 164—BI
MASTOIDITIS, sulfanilande, surgery and antiserum, [Curtin] 1011—ab
relation to infantile mortality, [Leathart]
563—ab

remuon to infantile mortality, [Leathart] 563—ab without classic symptoms, [Dixon] 173—ab MATERNITY, American Committee on Maternal Welfare instructions on care of babies during air raids, 985

ing air raids, 983 care, meeting on, Connecticut, 469 Hospitals; Services; etc.: See Hospitals mortality in cesarean section, [Cosgrove & Norton] *201; [Fails] *204 welfare, loan for health department in Chile,

welfare teaching day, Rochester, 1231
MANILLARY SINUSITIS, sulfonamide application in nose, [Klestadt] 998—C; [Fletcher]

998-C MAYO Foundation: See Foundations MEAD JOHNSON & Co. "B Complex" Award, 1153: (to Dr. Cowgill) 1506 Blended Oll containing Vitamins A and D,

MEAD JOHNSON & Co. "B Complex" Award, 1133; (to Dr. Cowgll) 1506
Blended Oil containing Vitamins A and D, 1216
Riboflavin Tablets, 1 mg., 141
MEALS: See under Food
MEARS Aurophone, 978
MEASLES. Commission on, 463
encephalitis after, [de Mattos] 1016—ab
-like cruption from sulfaguanidine, [Turell & Leifer] *977
treatment, plasma, [Strumla & McGraw] *129
MEASUREMENTS, metric vs. English: converting grains into Gm. or Cc., [Anderson] 999—C
MEAT: See also Trichinosis
polsontug from, in Germany, 1382
rationing, France, 474
typhold outbreak due to, [Duff] 1519—ab
MEDIALS: See Prizes
MEDICAL ADMINSTRATIVE CORPS RESERVE: See Medicine and the War
MEDICAL ADMINSTRATIVE CORPS RESERVE: See Medicine and the War
MEDICAL AND SURGICAL RELIEF COMMITTEE of America, (medical supplies needed in Hawail) 465; (energney medical field sets) 542; (distributes first ald kits) 905; (policy regarding donations) 1457
MEDICAL ASSOCIATION: See American; Association; Societies, Medical; list of Societies at end of letter S
MEDICAL ROKES: See Books; Library; Rook
Notices at end of letter B
MEDICAL CARE: See Medical Service
MEDICAL CENTER: See also Schools, Medical; University
of Virginia, (U. S. government and MarkleFoundation grants to) 60; (new division for "general practice") 745

MEDICAL CORPS: See Army; Medicine and the War; Nay), World War II MEDICAL DIATHERWY: See Diathermy MEDICAL EDUCATION. See Education, Medical MEDICAL EQUIPMENT. See Medical Supplies MEDICAL EXAMINATION. See Physical Experience.

MEDICAL EXAMINATION. See Physical I amination
MEDICAL EXAMINERS: See Aviation
MEDICAL FEES: See Fees
MEDICAL HISTORY: See Medicine, history
MEDICAL INDEXES: See Index
MEDICAL INDEXES: See Index
MEDICAL JURNALS: See Journals
MEDICAL JURNALS: See Journals
MEDICAL JURNALS: See Journals
MEDICAL JURNALS: See Also Lagard Medicals

MEDICAL INSTITUTE: See Institute
MEDICAL JURISPRUDENCE See Journals
MEDICAL JURISPRUDENCE See also Laws
and Legislation, Malpractice, Medicolegal
Abstracts at end of letter M
A. M. A. Session on Legal Medicine at
Atlantic City, 1500—OS
court decision on county society expelling
member, Calif., 1476—OS
court decisions of medical interest, report,
1475—OS
court restrictions on marriage of syphilitics,
[Forster & Shaughnessy] *796
court to protect civil rights of persons in
military service, (Bureau report) 307
Medicolegal Abstracts, Volume 3, 1474—OS
physical medicine, prevention of legal claims,
[Hibben] *1038
U.S. Supreme Court decision on record keeping of evempt narcotics, 1144—E, 1475—OS
MEDICAL LEGISLATION See Laws and Legislation

MEDICAL LIBRARY See Library
MEDICAL LICENSURE: See Licensure
MEDICAL LITERATURE. See Books, Index;

Journals
MEDICAL MISSIONARIES See Missionaries
MEDICAL MUSSIONARIES See Museum
MEDICAL OFFICERS: See Army, Medicine

MEDICAL OFFICERS: See Army, Medicine and the War, Navy MEDICAL PERIODICALS See Journals MEDICAL PILOTS. See Aviation, Medicine and the War MEDICAL PLANNING Commission See Brit-

MEDICAL PLANNING Commission See British Medical Association
MEDICAL PRACTICE: See Medicine; Physicians, practicing, Specialties
MEDICAL PRACTICE ACTS: See also Medicolegal Abstracts at end of letter M state, amendments adopted, (Bureau report)
1478-0S

regal Asstracts at end of letter M
state, amendments adopted, (Bureau report)
1478—08

MEDICAL PREPAREDNESS. See Medicine and
the War
MEDICAL PRESSION See Medicine, profession of; Physicians, Surgeons
MEDICAL RECRED librarians in all hospitals
*1065; (care of clinical records) 1498—08
MEDICAL RESEARCH See Research
MEDICAL RESEARCH See Research
MEDICAL RESEARCH See Medicine and
the War
MEDICAL SCHOOLS See Schools, Medical
MEDICAL SCHOOLS See Schools, Medical
MEDICAL SCHOOLS See Research, Science
MEDICAL SCHOOLS See Research, Science
MEDICAL SCHOOLS See also Health service,
Hospitals, Insurance, health, etc.
British Medical Association medical planning
commission, 152—0S, 994
civillan needs and medical officers for military
service, 228—E; 231
facilities for rehabilitation of registrants,
384; 385
family, expenditures for, 1501—08
federal workers health service, 746
for indigent: See Medically Indigent
Industrial See Industrial Health
nation's health: Dr. Goldwater's optimistic
outlook, 468—08
National Conference on, 393
Plans. See also Hospitals, expense insurance
plans, A M A's attitude on, (Bureau report)
1481—08
plans, California Physicians' Service, 150
(caralysis of calls) 654—08

plans, AMA's attitude on, (Bureau report)
1481—0S
plans, California Physicians' Service, 150
—0S, (analysis of calls) 654—0S
plans, Colorado Medical Service, Inc, 1377—0S
plans, Colorado Medical Service, Inc, 1377—0S
plans for small industries, [Kaliski] 645—ab;
[Bloom] 652—ab
plans, Medical Service Association of Pennsylvania, 1377—0S
plans, Michigan Medical Service, 653—0S
plans, Oregon Physicians Service Bureau
under control of state society, 654—0S
plans, state laws authorizing, (Bureau report)
1479—0S

plans, state laws authorizing. (Bureau report)
1479—08

MEDICAL SOCIETY: See also Societies, Medical; list of Societies at end of letter S
of County of Kings honors ex-presidents, 59
of District of Columbia, (prizes) 1378
of Fort Greely, Kodiak, 60
of Virginia, change in graduate instruction 1152
MEDICAL STUDENTS: See Students, Medical
MEDICAL STUDENTS: See also Apparatus,
Dressings; Drugs; First Aid, Instruments,
Splints; etc.
Committee on, appointed at National Research
Council conference, 1298—E
consultants in medical and drug supplies, 540
for Britain, etc.: See World War II, European
Front
Medical and Surgical Relief Committee of
America: See Medical and Surgical Com-

fedical and Surgical Relief Committee of America: See Medical and Surgical Com-mittee

MEDICAL SUPPLIES-Continued needed in Hawall, 465 Palestine, 912; 1509

rubber made available for 905

rubber made atailable for, 905
shortage of medicaments, France, 1155
MEDICAL TECHNICIANS: See Technicians
MEDICAL TERMINOLOGY: See Terminology
MEDICAL WAR relief fund for British physicians and dependents, 552
MEDICALLY HANDICAPPED: See Disability;
Handicanned

MEDICALLY HANDICAPPED: See Disability;
Handicapped
MEDICALLY INDIGENT, medical aid for dependent children, N. Y, 155
program of indigent child care, Tevas State
Medical Association agreement, 57—08
MEDICINE: See also Education, Medical,
Medical Service, Physicians, Surgeons; etc.
Academy of. See Academy
A M A.-American Pharmaceutical Association medical-pharmaceutical conference, 617;
900—E: 1145—E, 1372—E
A M A Committee to Study the Relationship of Medicine and Law, 1488—08
Aviation See Aviation
body anatomic and the body politic, 740—ab
Cults See Chiropractors, Naturopaths
Fellowships in See Fellowships
Forensic See Medical Jurisprudence
history, American Association of, 1506
history, American Association of, 1506
history first accounts of valloy forer in 1618

Ferronsides in See Ferronsings Forensic See Medical Jurisprudence history, American Association of, 1506 history, first account of vellow fever in 1648, 283—ab history, fi 329—SS first epidemic of syphilis 1494-

history, Institute of, at Johns Hopkins, 1379 history of early medical education in U S, 759—SS

history, Official Medical History of the War, 1234
history, Orr method for wounds and compound fractures, [Orr] 917—C
history, Society of Medical History of Chicago, 309
history, Suffanllanded decorated by R. Colmo-

cago, 309
history, sulfanilamide discovered by P. Gelmo
in 1908, 862—ab
Industrial See Industrial Health
Institute of See Institute
Internal See Internal Medicine
Lecture See Lectures
Legal See Lettures
Legal See Legal Medicine (cross reference)
Military See Medicine and the War, World
War II
Organized See American Medicine

War II
Organized See American Medical Association, Societies, Medical
Physical See Physical Therapy
practice of, in U.S. Children's Bureau, 1377

—OS

-OS
Practice, Protecting while called to Service:
See Physicians practicing
Prizes in See Prizes
Profession of See also Physicians, Specialists, Surgeons, etc
Profession of, and Military Emergency: See
Medicine and the War
profession of, future organization, England,
152-OS

152-08
relationships of American nations, [Stice] *234

relationships of American nations, [Stice] *234
Research in See Research
Royal Society of See Royal Society
scholarship in, [Christian] *757
Scholarships. See Scholarships
Social See Insurance, health, Medicine, state
Specialization See Specialities
State. See also insurance, health
state, New Zealand, 314
Tropical See Tropical Medicine
Women in See Nurses, Physicians, women
MEDICINE AND THE WAR See also World
War II
air raid wardens, teachers of, Wayne U,
1305

air ra 1305

air raids, care of bables, 985 allergy as a specialty, U S. Navy recognizes,

ambulance calls and shortage of interns, N Y,

55
ambulance riding duties, interns relieved of,
New York City, 905 of Philadelphia, 541
American College of Surgeons (one day sessions on military medicine), 738, 985, 1456
A M A's active participation in, 1459—OS;
1480—OS, 1481—OS, 1484—OS
A.M A Committee on Medical Preparedness,
1480—OS, 1481—OS; 1494—OS; 1486—OS
A.M. A dues and physicians in service,
1460—OS

1460—US
American Red Cross: See also under various
subheads as Blood; First Aid; Nurses, etc.
American Red Cross and New York City
cooperate, 737
American Red Cross disaster relief squadrons,

American Red Cross mobile units, 1458 anesthesia, [Phillips] 409—ab Arnold, Gerald E, appointed by Office of Chillian Defense, 984

Civilian Defense, 984
aviation, air surgeon. Col Grant, 542
aviation, assistants to flight surgeons, 1376
aviation medical examiners, 639, 1457
aviation personnel; need for flight surgeons;
School of Aviation Medicine, [Tanney]
555-C; [Darnall] *903
aviation, physicians for air force, 1145-E; 1146
battalion medical officer, [Conn] *1301

MEDICINE AND THE WAR—Continued Baylls, James E, brigadler general, 1457 Bayne-Jones, Stanhope, on duty in Surgeon General's office, 987

Bayne-Jones, Stanhope, on duty in Surgeon General's office, 987 blackouts, deep red light better than blue in, 541 blood and plasma banks, Office of Civilian Defense will aid establishment, 1147 blood banks, cooperative program, Maine, 1303 blood banks, corivilina defense, 232 blood donor days, Wayne U, 1305 blood donor service, Chicago, 743 blood donor service, Chicago, 743 blood donors for Army, call for, 510 blood donors for Army, call for, 510 blood donors for Army, call for, 510 blood plasma (dried, liquid or frozen), [Newhouser] 1252—ab blood plasma service, Illinois program for, 937 blood procurement program of Red Cross, physicians needed, 231 blood serum, normal human dried, Circular Letter No 28, 1375 "cabulances" and "snift" sets for Washington D C., 1457 Carey, William H Jr, appointment by Office of Civilian Defense, 984 Carlisle Barracks, (Hoff Hall) 157, (ROTC summer camps discontinued) 740; (gridaation at) 825, (training medical officers) 937; Lieut Col Higgins liaison officer) 1375. (Negro medical officers graduate) 1458 casuality hospitals, 984, (St Louis) 1455 casuality stations, Chicago Medical Society aids in manning, 907 chemical warfare instruction at University of Cincinnati, 1304 Circular Letter No. 124 on influenza, 145 Circular Letter No. 124 on influenza, 145 Circular Letter No. 124 on influenza, 145 Circular Letter No. 124 on influenza, 145 Circular Letter No. 124 on influenza, 145 Circular Letter No. 124 on influenza, 145 Circular Letter No. 124 on influenza, 145 Circular Letter No. 124 on influenza, 145 civil rights of persons in service, protection of (Bureau report) 306; 1478—08 Civilian Defense, See also subhead, Emergency Medical Services civilian defense, allocate equipment for, 1301 Civilian Defense, campaign for correct dict, 55 civilian defense, campaign for correct dict, 55 civilian defense, campaign for correct dict, 55 civilian defense, campaign for correct dict, 55 civilian defense, campaign for correct dict, 55 civilian defense, campaign for correct dict, 55 civilian d

Civilian Defense, A. M. A. cooperation with 1485—OS
Civilian Defense, appointments to, Ill., 1451 civilian defense, campaign for correct diet, 55 civilian defense, course on at Edgewood Arsenal, 905 civilian defense in District of Columbia, 233 civilian defense medical officers on field duty, 540.

civilian defense plans in New York City, 610 civilian defense, sanitary engineering in, 232 civilian defense, typhoid immunization, 337 civilian protection areas in Illinois, 540 civilian protection division, Seattle, 1456 Cieveland's Lakeside unit on active service, 511 coccidiolomy costs at Camp Roberts, Calif, [Shelton] *1186 Colleges and federal aid, [Munro] *1030 Committee on Drugs and Medical Supplies, 1298—E communicable diseases (nuvenile) in soldiers

Committee on Drugs and Medical Supplies, 1298—E communicable diseases (juvenile) in soldiers and sailors, [Davison] 410—ab cooks and bakers, Army schools for, 233 Coulter, John S., appointed by Office of Civilian Defense, 984 Cuban Committee, 739 Defense Public Works and hospitals, 659 deferment of fedoral omployees who are reserve officers cancelled, 232 deferment of medical doctors, dentists and doctors of veterinary medicine, 462; 633 deferment of medical students, 633, *1067: 1143—E; 1486—OS deferment of professional students and instructors, 464, 632 demential precox, [Duvail 410—ab dental chief. Col Mills, 1227 Diet See subhead; Nutrition Dunham, George C, temporary brigadier general, 1457 Dyar, Burt A, appointment, 1456 emergency hase hospital, 984

Diet See submeau.

Dunham, George C, temporary brigidier see eral, 1457

Dyar, Burt A, appointment, 1456
emergency base hospital, 984
emergency casualites among civilians, dispatch of, St Louis program, 1455
emergency medical feel sets, 542
emergency medical field units, narcotics in, 334
emergency medical field units, narcotics in, 334
emergency medical service, chart showing organization, 1376
emergency medical service, Chicago, 539, 207
emergency medical service, Milwaukee prepares, 1458
emergency medical service, state hospital officer a official of, 1376
emergency service units, South Carolina, 549
emergency squads, Eric organizes, 542
emergency treatment, symposium on, Mary, 51—E; 122—E, 623; 2011; 1522—E
Navy, 51—E; 122—E, 623; 2011; 1522—E
Navy, 51—E; 122—E, 623; 2011; 1522—E
Treat aid handbook issued by Office of Civilian
Defense and Red Cross, 205

MEDICINE AND THE WAR—Continued
first ald instructors—American Red Cross appeals for funds, 145
first ald kits distributed by Medical and
Surgical Relief Committee, 905
first aid, lectures on, New York, 233
first aid materials, hoarding, 1303
first aid stations, Jefferson County, Ala, 542
Food: See subhead: Nutrition
gas decontamination corps, Baltimore, 1305
gas decontamination of eyes with hydrogen
perovide, 1374

peroxide, 1374
gas warfare textbook on "Protection Against
Gas," 987

Gas," 987
Gonorrhea: See subhead: Venereal disease Grant, David W, appointed air surgeon, 542 health centers and clinics in defense areas, federal legislation, 1476—OS health departments and Illinois defense zones,

health departments and Illinois defense zones, 738
health in areas adjoining military and naval reservations and industrial plants, 1477—08 health of Selective Service registrants, [Rowntere & others] *1223
Higgins, Stanton, liaison officer, 1375
Hillman, Charles C., promoted to Brigadler General, 1305
hospitalization for civilians injured, 983; 1374
hospitals, Base Hospital No. 17 of World War I reorganized, 465
hospitals, Bryn Mawr Naval Hospital physicians ordered to duty, 233
hospitals, Columbia U., unit ordered to active service, 987
hospitals, Darnall Hospital named for General Carl Rogers Barnall, 146
hospitals (evacuation) called to active duty, 542
hospitals (evacuation) called to active duty, 542
hospitals in defense areas, federal legislation, 1476—08 1476-OS

hospitals in defense areas, reterral legislation, 1476–OS
hospitals, Northwestern U. unit leaves for active service, 738
hospitals, O'Reilly General Hospital, 542
hospitals, D'Reilly General Hospital, 542
hospitals, protection, A. H. A. collaborating with Office of Civilian Defense, 1374
hospitals, protection committee, meeting of, 233
hospitals, cistate) available for chromic cases, New York City, 1458
hospitals, units ordered to active service, 640
Hunt, Wallace D., appointment, 1456
Income tax payment by those in military service, 737
income tax, physicians in service subject to, 387—OS; 388—OS
Induction Board: See subhead: Selective Service

Service industrial and vocational training in national defense program, [Sawyer] 641—ab ladustrial health and war industry, 622—E; 624—E; [Seeger] 641—ab; 1228—0S; (Council report) 1470—0S industrial medical mobilization, 622—E industrial plants, health in areas adjoining, 1477—0S

1477—08 industrial procurement and assignment of physicians [Seeley] 644—ab industrial workers, war conference for protection of, Illinois, 1307 influenza: control, treatment, Circular Letter No 124, 145 Interprofessional Conference formed, District of Columbia, 200

Interprofessional Conference formed, District of Columbia, 309 interprofessional meeting on war activities, 744 lry, Robert H, addresses officers, 1456 Kalamazoo Coaches, Inc., not authorized to mention Catastrophe Unit, 746 Kelser, R. A, promotion, 1458 Lanza, A, J., on duty in Surgeon General's Office, 986

Office, 986
Lee, Roger I, addresses aimy officers, 1305
Leland (R G) appointed member to Selective
Service System committee, 906—OS
libraries in camps, 1375
Mackintosh, James M, appointment, 1456
WcKneely, Thomas B, appointment in Office
of Civilian Defense, 1456
manpower of nations at war, 464; [Rowntree & others] *1226
Marks, Harold, appointed by Office of Civilian Defense, 984
Medical Advisory Boards (VI), function of, 1227
Medical and Surgical Relief Committee, 905;
1457

steucht and Surgical Relief Committee, 905; 1457
medical areas for mutual assistance in Washington state, 1458
medical defense measures in Chicago area, 146
medical personnel needed to care for health
of military, [Darnall] *901
Medical Profession See also other subheads as Specialists
medical profession, a call to service, 50—E
Medical Reserve officers holding key civilian
positions, 983
medical schools, New York University, 334—SS
medical schools, physiology department at
Washington U, 332-SS
medical schools symposium, at Long Island
College, 147
medical schools, war effort of Loyola, 760—SS

Colege, 147
medical schools, war effort of Loyola, 760—SS
medical services, maintaining, 634
medical society lectures on war emergencies,
Passaic County, 1376
medical students and interns, deferment of,
638, *1067; 1143—E, 1486—OS

MEDICINE AND THE WAR—Continued medical students, appointments as ensigns in class H-V (P) U S Naval Reserve, 386 medical students at Louislana apply for commissions, 334—SS

missions, 334—SS
medical students, commissions in Army reserve open to lower classmen, 824
medical students, military preparedness symposium at Long Island College, 333—SS
medical students of Pittsburgh teach in defense program, 760—SS
medical students pledge of allegiance, reprinted, 330—SS
medical students, recommendations regarding military service, 300—E, 304
medical students, reserve commissions for, 146
medical students war activities at Wayne, 762—SS
medical supplies, consultants 540

T62—SS medical supplies, consultants, 540 medical supplies, rubber made avaliable, 905; (Bureau report) 1475—08 Metcafle, Raymond F, brigadler general, 1457 Mills, Robert H, new Army dental chief, 1227 morale, bulletin by Association of Advancement of Psychoanalysis, Committee for National Morale 624—E morale, New York Academy radio talks, 900—E Morgan, Hugh J, ordered to active duty, 386 mosquito control in defense areas, Md, 59 narcotics, recommendations by Office of Civilian Defense, 394 Mational Research Council Division of Medi-

ian Defense, 394 National Research Council Division of Medi-cal Sciences, Conference, 1298—E Negro medical officers graduate at Carlisle

National Research Council Division of Medical Sciences, Conference, 1298—E
Negro medical officers graduate at Carlisle Barracks, 1458
nurses, army Nurse Corps, 1374
nurses, federal ald to increase supply, 1477—OS
nurses, one week institutes by Red Cross, Mich, 1305
nurses, refresher courses for, Detroit, 147
nurses supt promoted to colonel Mrs Julia
O Flikke, 1305
nurses (undergraduate), defense program to train, 541
nurses, V S Army needs 10,000, 985
nurses work in civilian defense, 986
nutrition, annual symposium on, New York, 147
nutrition, correct diet, campaign for, 55
nutrition, food front, Washington, D. C, 990
nutrition, nostitute on, Michigan, 829
nutrition, symposium on, 542
obstetrics in wartime, [Schattenburg] *1190
Office of Civilian Defense. See also subhead:
Civilian Defense, and other subheads
Office of Civilian Defense, appointments by, 984, 1456
Office of Civilian Defense requisition for 2 defense area directors filled, 231
Office of Defense Health and Welfare Services, Paul V McNutt, Director, 625
Office of Price Administration, fix prices of salicylic acid and theobromine, 386
Office of Price Administration, fix prices of salicylic acid and theobromine, 386
Office of Price Administration, fix prices of salicylic acid and theobromine, 386
Office of Price Administration, fix prices of salicylic acid and theobromine, 386
Office of Procurement and Assignment Sec
subhead Procurement
optical units to accompany armies in the field, 740
orthopedic mechanic positions open, 541
physical defects for limited service officers,

orthopedic mechanic positions open, 541 physical defects for limited service officers, 1146

1146
physical defects, rejection causes for military
service, [Rowntree and others] *1223
physical examination, percent of California
registrants rejected, 146
physical rehabilitation of registrants under
Selective Service, 393, 825
physical, rehabilitation program, Baltimore,
1304

1304

1304

Physicians: See also under other subheads as: Battallon medical officer, Blood donor services, Specialists; U.S. Army, etc physicians, A.W.A. dues, suspension, 1460—OS physicians for the air force, 1145—E, 1146 physicians over or under 45, recommendations regarding military service, 300—E, 305 physicians, young, Army Medical Department needs, [Darnail] *904 priorities, 905, (Bureau report) 1475—OS, 1455

priorities, 905, (Bureau report) 1475—OS, 1455

Procurement and Assignment Service (enrolment blank) 51—E; 142—E; (purpose of) 228—E, (number of physicians needed) 231; (recommendation) 300—E, 301; (appilleation form) 462; (open letter to) 539; (industrial) 622—E, (history of) 625; (location of offices) 626, (chart showing organization) 627; (officers in charge) 635; (discussion of) [Seeles] 644—ab; (relation to Selective Service) 925, (enrolment form) 991, (value of) [Darnall] *904; (request for physicians in air force) 1145—E; 1146; (Civil Service Commission recommends enrolment) 1221, (personnel for Army and Navy Officers for U. S.

Medical Economics, cooperation with) 1481—OS

Prostitution: See subhead: Venereal disease quinine conservation order (M-131), 1455. Rankin, Fred, ordered to active duty, 307 recreation centers and service clubs, 55

MEDICINE AND THE WAR—Continued Reekle, Dudley A, appointed by Council of Civilian Defense, 984 Rehabilitation: See subhead: Physical Re-

Civilian Defense, 984
Rehabilitation: See subhead: Physical Rehabilitation: See subhead: Physical Rehabilitation
roentgenography (mnss), 3 low cost methods, [Mercer] 407—ab
safety measures at Wayne U. 1376
sanitary engineering in civilian defense, 232
Scheele, Leonard A., appointed by Office of Civilian Defense, 984
Selective Service. See also subhead: Procurement and Assignment Service
Selective Service and Induction Board physicians meet, 542
Selective Service boards and Procurement and Assignment, 825
Selective Service registration at Annual Congress on Medical Education, 303—E
Soldiers: See also under other subheads
soldiers, Army to buy 4 million shoes in March, 465
soldiers forbidden to hitch-like, 542
soldiers, government to provide with spectacles, 465
soldiers, grynecomastia in, [Sullivan & Munslow] *1443
soldiers' identification tags, 541
soldiers' identification tags, 541
soldiers' intinable heart; certain observations of interest, [White] *270
Soldiers, physical defects. See subhead: Physical Defects
spas in, [McClellan] 560—ab
Specialist Corps formed, 824
specialists, Dayton Unit ordered to active duty, 465
specialists, share fees with members in service, Indianapolis, 1227
splints (ladder wire) used in Army, 1169
Stephenson, Charles S, returns from London, 1305
streptococcus viridans septicemia; cure with sulfanyidine, [Moore & Tannenhaum] *372 Stephenson, Charles S, tetunis 1305

Streptococcus Virldans septicemia; cure with
sulfapyridine, [Moore & Tannenbaum] *372

Students: See also subhead Medical Students
students enlisting in class V-1, U. S. Naval

students enlisting in class V-1, U. S. Naval Reserve, 540
Syphilis: See subhead: Venereal disease
Thompson, L. R., chief inspecting officer, 312
tropical medicine instruction for officers, 1455
tuberculosis in this and in World War I,
[Pollock] 668—ab
tuberculosis increased in defense industries, 61
Turner, Thomas B, on duty, 1305
typhold immunization; 337
U. S. Army: See also under various other
subherds

U. S. Army: See also under various other sublecteds
U. S. Army: See also under various other sublecteds
U. S. Army, affiliated units in Medical Department, 1454—E
U. S. Army Central Control Board: 8 investigating commissions, 463
U. S. Army dental chief, 1227
U. S. Army, enlisted men become administrative corps officers, 1303
U. S. Army, health statistics, 1382; 1456
U. S. Army, health statistics, 1382; 1456
U. S. Army, Medical Department promotions, 1478
U. S. Army, Medical Department Penlacement

U S Army Medical Department Replacement Training Center, 307, 1457 U S Army, office of Surgeon General moved,

US Army, office of Surgeon General moved, 147
US. Army, physicians, dentists or veterinarians for, 629
US Army reserve officers ordered to active duty, 56; 466; 543; 640; 740
US Civil Service Commission recommends enrolment, 1221
US Naval Reserve, (opportunity to premedical and medical students) 386, (method of procuring medical officers) 1301
US Navy, promotions in, 739
US Public Health Service, (temporary hospitalization of persons injured by enemy action) 983; 1374; (problems) [Parran] *1033 vaccination against typhus, cholera and plague, (Circular Letter No. 3), 385 venered disease control officers among American troops, 823 venered disease; false health certificates for prostitutes, 1370—E venered disease in registrants, [Rowntree] *1224, *1226 venered disease increase in U. S. Army, 821 venered disease, prostitution near camps, federal logislation, 1476—OS venered disease, reporting registrants with, 1304
Var Injuries (from Combat (12)). See World.

virus disease, laboratory alda in diagnosis of, 57 War Injuries (from Combat, etc.): See World War II, Pacific Front water supply protection, (III.) 1230, (N. Y.) 1457

women, work for, 1378 yellow fever immunization for all army personnel, 737

MEDICOLEGAL: See Legal Medicine (cross

MEDICOLIGAL: See Legal Acciding (cross reference)
MEDULLOBLASTOMA, cerebellar, spinal metastases in, ctiologic role of Cushing's silver clips, [Halpern] *803
MEHARRY Medical College, Icetures at, 472
MELANIN, graying of hair, [Hrdlicha] *915-C

MEMBRANA capsularis lentis posterior, 736—E MEMORY, disturbed, after phenytoin sodium, 679

Loss of: See Aphasia MEN: See also Male (cross references); Man Power

Loss of: See Aphasla

MEN: See also Male (cross references); Man
Power
aging, climacteric in, vs. menopause in women, 458—E
belief in the common man; democracy vs.
Nazilsm, 955—ab
MAN A NUTRITIVE PROCESS, brochure, (Council report) 1450
MENADIONE, N. N. R., description, 226; (McNell) 1052
MENARCHE: See Menstruation, inception
MÉNIÈRE'S Disease: See Vertigo, aural
MENINGES hemorrhage, subdural hematoma, electroencephalogram in, [Gibbs] *216
permeability to sulfathiazole in meningitis treatment, [Lehman] 338
permeachilty, uric acid in spinal fluid, [Baptista dos Reis] 756—ab
subarachnoid space, anesthesia by repeated injections in, [Burford] 1012—ab
MENINGIOMAS, malignant, [Turner] 1256—ab
MENINGIOMAS, malignant, [Turner] 1256—ab
MENINGITIS: See also Meningoencephalitis
Acute Aseptic: See Choriomeningitis cerebrospinal epidemic, bacteria in convalescents and carriers, [van Rooyen] 926—ab
cerebrospinal epidemic, (diagnosis, treatment; prevention, [Dingle] 1415—ab
cerebrospinal epidemic, sulfadiazine for, [Long] 170—ab
cerebrospinal epidemic, sulfadiazine for, [Long] 170—ab
cerebrospinal epidemic, sulfadiazine for, [Long] 170—ab
cerebrospinal epidemic, sulfadiazine for, alpha-sulfonate for, [Mutch] 325—ab
electroencephalogram in, value, [Gibbs] *216
influenzai [Pfelifer's bacillus), [Mutch] 1416
—ab
Lymphocytic: See Choriomeningits
Meningeoccie.* See Meningitic cerebrospinal

-ab Lymphocytic: See Choriomeningitis Meningococcic: See Meningitis, cerebrospinal epidemic otitic bacterial, [Weinsteln] 1330—ab staphylococcic, [MacNeal] 842—ab streptococcic, sulfanilamide for, [Garrahan]

673—ab
treatment, sodium sulfathiazole, intravenously
and orally, [Lehman] 338
treatment, sulfapyridine, [Hoyne] 924—ab
MENINGOCOCCUS infection, [Dickson] 1015—ab
Meningitis: See Meningitis, cerebrospinal

epidemic

MENINGOENCEPHALITIS, diagnosis, complement fixation test, [Casais] 255—ab

Syphilitic: See Dementia Paralytica

MENISCECTOMY: See Semilunar Cartilage

MENNINGER Clinic of Topeka, psychiatric

training program changes, 908

Foundation: See Foundations

MENOPAUSE, arthralgia in, [Ishmael] 923

arifficial, effect on skeletal metastases of breast cancer, [Farrow & Woodard] *340 in women vs. climacteric in aging men, 458

in women vs. cilmacteric in aging men, 458
—E
postmenopausal bleeding, [Gelger] 406—ab
recentgen irradiation of pituitary, [Pendergrass] 483—ab
symptoms, alpha estradiol sublingually for,
[Hall] 1253—ab
symptoms: effect of diethylstilbestrol orally
an, [Peelen] 487—ab; [Arenas] 1417—ab
symptoms, implant crystalline estrone pellets
for [Bennett & Te Linde] *1341
therapeutic use of synthetic estrogen RG-20,
[Gordon] 1002—ab; 1003—ab
MENORRHAGIA: See Menstruation, disorders
(severe bleeding)
MENSTRUATION, blood loss in
body swellings precipitated by pressure around
period, 262
Cessation: See Amenorrhea; Menopause;
Menstruation, delayed
delayed, nostrum: Lady Lydia Capsules, 318
—BI
Disorders: See also Amenorrhea
disorders nestrum: Dr. Blanchard's Reg-

Disorders: See also Amenorrhea disorders, nostrum: Dr. Blanchard's Regulator, 246—Bl disorders, nostrum: Menstruaid Nos. 1, 2, 3, 4 and 5, 247—Bl disorders, nostrum: Mrs. Bee Femo Caps, 247—Bl disorders, roentgen irradiation of pituitary, [Pendergrass] 483—ab disorders, severe bleeding, splenectomy in [Pernokis] *855 donors, [Fowler] 430—ab endometriosis (perincal) behavior in, [Jessing] \$32—ab

encometriosis (perincal) behavior in tecsning \$52-ab grandotropin (mare serum) intramuscularly effect on, [Brewer & others] \$\frac{\pi}{2}78\$ inception, age of in Argentina, 160 intermenstrual pain (severe) or Mittelschmerz,

681
pregnancy from coltus during, 419
"safe period," [Latz] 1326—ab
skin changes in, frequency of, [Schölzke]
929—ab
tampons, vaginal, 770
thyroid and menstrual bleeding, [Collins]
753—ab

MENTAL DEFECTIVES: See also Epilepsy Swiss Society for Psychiatry, 661 MENTAL DISORDERS: See also Dementia Paralytica; Dementia Precox; Hospitals, psychiatric; Insanity; Psychoses dextrose tolerance test in diagnosis of mar-

etail maintrition, [Robinson] 323—ab fertility of patients, evaluation of German sterilization measures, 315 in Hawaii, [Kepner] 1609—ab in soldiers, [Witthower] 489—ab; 563—ab patients, precommitment services for, Illinois, 58

in Hawaii, [Kepner] 1009—ab in soldlers, [Wittkower] 489—ab; 563—ab patients, precommitment services for, Illinois, 58
patients, study of family care and parole, 154 rejection for military service, 1147, [Rowntree & others] *1226
MENTAL HEALTH: See Mental Hygiene
MENTAL HEALTH: See Mental Hygiene
MENTAL HEALTH: See Mental Hygiene
MENTAL HYGIENE project, Waukegan News-Sum cooperates in, 547
Michigan program described; Dr. Tallman director, 470
MERCUPURIN treatment of familial hereditary edema (Milroy's disease), [Stern] *1212
MERCURIC Compounds: See under Mercury
MERCURY: See also Salyrgan
diuretics orally in edema, [Borg] 1404—ab mercuricalism in felt hat industry from fur "carroting" process, 54—E
mercuric succinimide N. N. R., (Cheplin), 49
mercuric succinimide N. N. R., (Cheplin) 141; [Flint, Eaton) 141
toxicity, ascorbic acid in stomatitis due to, [Marin] 1260—ab
MERSALVI: See Salyrgan
MERTHIOLATE, to prevent cartilage grafts from warping, [New] 404—ab
MESENTERY rupture due to nonpenetrating abdominal frauma, [Poer & Woliver] *11
METABOLISM: See also under name of substance concerned as Amino Acids; Calcium basal, and calories required. 1284—ab
basal, calculation of, and temperature of patient, 508
basal, in chronic illness, [Stiles] 1247—ab
basal, of same person after 50 years, [Magnus-Levy] *1369
basal, standards in children, [Bruch] *1291
of yellow fever, [Soper] *375
METAL: See also Gold; Lead; Vitallium
Clips: See Clips
fure fever from magnesium, 337
taste in mouth, 935
METASTASES: See Cancer; Medulloblastoma;
Tumors; Wound phagedena
METHYLENE BLUE: See Methylthonine Chloride
3-3*-METHYLENE BLUE: See Methylthonine Chloride
3-6*-METHYLENE BLUE: See Methylthonine Chloride
3-6*-METHYLENE BLUE: See Methylthonine Chloride
3-6*-METHYLENE BLUE: See Methylthonine Chloride

METHYLENE BLUE: See Methylinionine Chrodide
3-3".METHYLENEBIS (4-hydroxycoumarin) effect on blood coagulation, [Meyer & others] 1003—ab [Barker & others] 1003—ab
METHYLTHIONINE CHLORIDE test for gastric cancer, [Chamorro-R Salinas] 177—ab
test of surgical patient being able to digest food, [Golden] 404—ab use in rapid card technic for blood typing, [Thaihilmer & Myron] *370
METRAZOL treatment, spontaneous convulsions after [Liebert] *119; [Myerson] 664—C
METRIC vs. English measurements, [Anderson] 999—C

999—C METROPOLITAN Life Insurance Co., (real life tables exceed hypothetical) 57—OS; (estimate of men killed in present war vs. World War) 542; (mortality record for 1941) 546—OS; (mortality data on industrial tuberculosis) [Gardner] 643—ab; (hypothetical dental budget drawn up by) [Walls] 644—ab; (health education for Industrial workers) [Bristol] 650—ab; (war marriages) 653—OS; (educational program on diabetes) 1233
MEULENGRACHT'S method: See Stomach, hemorrhage

hemorrhage MEXICAN Congress of Internal Medicine, (first)

312

MEXICAN Congress of Internal Medicine, (1984)
312
Society of Ophthalmology, 659
MENICO, population problems in, 476
MICE Test: See Digitalis
MICHIGAN Medical Service, operated by Michigan State Medical Society, 653—08
MICROANALYSIS, blood chemistry, 934
MICROBIOLOGY: See Bacteria, Bacteriologists
MICROBORGANISMS: See Bacteria
MIDDLE AGE: See Age
MIDWIFERY: See Obstetrics
MIGRAINE: See also Headache
etiology, food allergy, (reply) [Rowe] 420
treatment, histamine azoprotein, [Sheldon]
456—ab
MILITARY Medicine: See also Medicine and
the War; World War
medicine, index of literature on; special defense project at Wayne University, 542
Surgeons, Association of, 745; (Wellcome
Medal) 1305

MILK allergy: milk, a human poison, [Darid-son] 1519-ab

son] 1519—ab to septic sore throat, 1151; correction) 1310

-cream mixture hourly for peptic ulcer, [Dick & Eisele] *38; [Luckhardi] 661—C; (reply) [Dick & Eisele] 664—C human, center for, Buenos Aires, 63 human, to determine prothrombin time, [Freudenberg] 1334—ab proteins, anaphylactic reactions due to, [Miyata] 676—ab rationing. (France) 474; 660 supply to school children, England, 63 vitamin D fortification, (Council report) 1479—OS

MILLER Lecture: See Lectures

MILLER-ABBOTT tube in surgery, [Leigh & Diefendorf] *2:10

MILROY'S Disease: See Edema

MINERAL: See also Gold; Lead; etc. fortification of foods, Council report, 1469-08 isbell's Mineral, 1241-Bi Marcell Mineral Laboratory, 318-Bi Oil: See Petrolatum, liquid water, effect on renal function tests, [Muether] 1411-ab

MINES, U. S. Bureau of, Dr. Fulton health chief, 1153

MINNESOTA Medical Foundation: See Foundations

MINNESOTA Medical Foundation: See Foundations
Radiological Society, 1231
University of: See University
MINUS-Sinus, 317—BI
MISCARRIAGE: See Abortion
MISSIONARIES, American, on Hainan, slain
by Japanese, 740
medical, doctor needed in Peru, 992
MISSISSIPPI Valley Conference on Tuberculosis, 745
Valley Medical Society, (annual prize) 659
MITCHELL, SILAS WEIR, American neurologist, famous novelist and poet, 1022—SS
MITRAL VALVE involvement in rheumatic
fever, life expectancy, 934
stenosis, cerebral embolism in [Harris] 168
—ab

-Ab
stenosis, prognosis of surrival, [Dry] *265
MITTELSCHMERZ: See Menstruation
MI-VIT-INE, 247-BI
"MIZAR"—Sorko, Lozinska, etc., 837-BI
MOBILIZATION: See Medicine and the War
MONCKEBERG'S Scierosis: See Scierosis
MONALDI'S Suction Drainage: See Tuberculosis, Pulmonary, cavities
MONONUCLEOSIS, infectious, [McFarland] 1408
-ab

MONONUCLEOSIS, infectious, [McFarland] 1408

MORALE, bulletin on; also organization of
Committee for National Morale, 624—F.
radio talks on, by New York Academy subcommittee, 900—E

MORBIDITY: See Disease
Statistics: See Vital Statistics
MORPHINE, use by emergency field units, 391

MORSUS humanus: See Bites, luuman
MORTALITY: See Accidents: Death; Infants:
Maternity, mortality; Vital Statistics; under
name of specific diseases

MORTGAGES, protecting civil rights of those
in service, (Bureau report) 306

MOSQUITOES, control and equine encephalomyelitis, California Association, 469
control program, (in defense areas, Maryland) 58; (Oregon) 156

transmission of encephalitides [Hammon]
66—C

transmission of yellow fever, Paraguay, 748
MOTHERS: See Families; Maternity; Pregnancy
MOTION PICTURES: See Moving Pictures

MOTHERS: See Families; Maternity; Pres.
nancy
MOTION PICTURES: See Moving Pictures
MOTION Vehicles: See Automobiles
cyclists should wear crash helmet to prevent
head Injury, 213
MOURE, EMILE-JEAN, death, 241
MOUSE Test: See Digitalls
MOUTH: See also Gums; Jaws; Lips; Stomatitis; Teeth
dryness of mucosa and atmospheric conditions, [Winslow] 1325—ab
lichen planus of, 855
metallic taste in, 935
nathology graduate course at Columbia U.,

pathology graduate course at Columbia U., 1151

MOVING PICTURES, Northwestern U. department of visual education, 332—SS available for loan by A. M. A., 1481 on Treponema pallidum, 471 roenigen bronchocinemalography, 662; [Castex] 12:58—ab MRS: Trade names beginning with "Mrs."; See under surname MUCOUS MEMBRANES: See also under 550-cific organ

offic organ bleeding from, caused by heparin, 1526 manifestation of nutrition, [Jolling & others]

*946
MUELLER, J. H., newer knowledge of dighthering gravis, 280—E
MULTIFIT "Barlos" Cartridge System, initacutaneous allergic testing, 853
MUNITIONS: See triNitrotoluene (TNT)

MURDER: See Suicides MURIEL Joan Beautifier, 247—BI MUSCLES: See also Musculoskeletal System; Tendons

adenylic acid from, for malnourished, [Vilter]

Attophy: See Atrophy beef muscle extract for anemia, [Moore] 1161

—ab
Cardiac: See Myocardium
chances (microscopic) in pollomyelitis, [Hipps]
1409—ab
Disease: See Myasthenia
Dystrophy: See Dystrophy
Graft Into Kidney: See Kidneys surgery
Muscular Work: See Wolk
serlatus, paralysis, brace treatment, [Wolf]
171—ab

serratus, paratysis, brace treatment, [Wolf]
171—ab
Spasms: See Cramps
sternocleidomastoid, tumor of; torticollis,

sternocleidomastold, tumor of; torticolns, [Janek] 675—ab
MUSCULAR Work: See Work
MUSCULOSKELETAL SYSTEM, rejection of Selectees, [Rowntree & others] *1226
MUSEUM: See also American Museum; Army, U. S.; Health museum; Royal College of

U. S.; Health museum; Royal College of Sungeons
Medical, International Association of, 992
MUSIC: See Physicians, avocations
MUSSIO FOURNIER, Juan César, 748
MUSTARD Gas: See d'Chlorocthyl Sulfide
MYALGIA, Epidemic: See Pleurodynia
MYASTHENIA GRAVIS: See also Dystrophy,

TYASTHENIA GRAVIS: See also Dystropny, muscular actylcholine, prostigmine and adrenalin intra-arterially effect on, [Harvey] 1007—ab atypical, 419 eye symptoms, [Mattis] 671—ab in golter; value of thyroidectomy, [Kowallis] 1250—ab

1250—ab treatment, guanidine hydrochloride, [Dodd] 252—ab MYCOSIS: See also Actinomycosis; Blastomy-cosis; Bronchomycosis; Dermatophytosis;

etc. etc. exfoliation of hands and feet, 1421 treatment, copper iontophoresis, [Greenwood] 80—ab; 181

80-ab; 181

MYELOMA, cndothelial, graduation of Ewing's tumor, [Campbell] 171-ab

MYELOSCOPY, [Pool] 1413-ab

MYOCARDITIS, interstitial, after sulfonamides, [French] 1248-ab

MYOCARDIUM, infarction (acute), cause of death in, [Baer] 248-C; [Le Roy & Snider]

infarction, esophageal lead in, [Nyboer] 167

—ab Infarction; incldence; signs, prognosis, [Shillito & others] *779 MYRINGOTIGE, Epidemic: See Pleurodynia MYRINGOTOMY: See Otitis Media MYXEDEMA, carotenemia in, [Escamilla] 1253

idiopathic or adult, [Jarlov] 1260-ab

## MEDICOLEGAL ABSTRACTS

ABORTION: criminal; catheter inserted in cervix by naturopath, 321 criminal; naturopath; insertion of catheter in cervix, 321.

ADVERTISING: chiropractic; office sign as indicative of practice, 1399 dental; deceitful and misleading statements, 482

1398
CHIROPRACTIC: advertisements; office sign as Indicative of practice, 1399
as practice of medicine, 166
COMPENSATION OF PHYSICIANS: license a prerequisite to collection of fee, 166
CONFIDENTIAL COMMUNICATIONS: witnesses; liability of physician for disclosures, 920
CONTRACEPTIVES: See Birth Control in restraint of pro1211
ry: right to prac-

ry; right to prac-

DENTAL PRACTICE ACTS: advertising; deceifful and misleading statements, 482 examining boards; discretionary powers, 1321 licenses; discretionary powers of board, 1321 licenses; r deceifful and misl "DOCTOR"; 481

ELECTION LAWS: interns as "students," 1515 interns in charitable hospitals as "kept" pereone 1515

sons, 1515
ENTERTIDIS: bacillus; workmen's compensation in relation to, 78
EVIDENCE: See also Malpractice; Medical
Practice Acts; Privileged Communications
hospital records; omission of record of treat-

hospital records: omission of record of treatment as evidence, 401
insanity commitment; affidavits of physicians as privileged, 558
photograph; operation scar, 321
privileged testimony; insanity affidavits, 558
witnesses: liability for disclosure of confidential communications, 920
FALSE IMPRISONMENT: insanity commitment; affidavits of physicians as privileged, 558

558
FIRST-AID: nurse negligent in rendering; employer's liability, 1159
HOSPITALS, CHARITABLE: nurses, special; as beneficiary of charity, 1399 nurses, special; liability for injury to, 1399 taxable status; tort liability in relation to,

taxable status; tort liability in relation to, 1515

HOSPITALS FOR PROFIT: nurses; liability for negligence of, 1242
HOSPITALS, GOVERNMENT: interns as "kept" persons, 1515
HOSPITALS IN GENERAL; malpractice of physician; liability, 1242
records; omission of record of treatment; evidentiary value, 401
INJUNCTIONS: medical practice acts; restraint of enforcement, 919
INSANITY: commitment; certifying physician appointed by court; civil liability, 1516—ML false imprisonment; affidavits of physicians as privileged, 558
INSURANCE, ACCIDENT: carbon monoxide; as "poison," 1400
INSURANCE, IN GENERAL: application in relation to waiver of privileged communications, 1399
INTERNS: as "students," 1515
LEAD: poisoning: metallic breast shields as cause of, 1242
MALICIOUS PROSECUTION: insanity commitment; liability of certifying physician, 1516

ment; liability of certifying physician, 1516

MALPRACTICE: abandonment of patient, 1000 anesthetics; cocaine; sodium hydroxide mis-taken for, 1242 assault and battery; unauthorized operations,

1319

1319 blindness; failure to treat eye injured by refrigerant, 1320 burns; roentgen rays, 78 consent; operations unauthorized; assault and battery, 1319 dentists; fragments of tooth not removed, 77 diagnosis; mistake in, 1000, 1319 diagnosis; reliance by attending physician on diagnosis previously made, 1000, 1319 evidence; photograph of operation scar, 321 evidence; res ipsa loquitur; failure to use tetanus antitoxin, 401

tetanus antitoxin, 401
evidence; res ipsa loquitur; roentgen burn, 78
evidence; witnesses, expert; conflict in testimony; effect of, 1320
evidence; witnesses, expert; necessity for, 1318
evidence; witnesses, expert; qualifications, 321
health foundation; liability, 1000
hospital's liability for negligence of physician,
1242

infantile paralysis; immobilization treatment,

1318 infection following treatment of puncture wound, 752

wound, 752
joint liability of health foundation and employee physicians, 1000
limitation of actions, 665
limitation of actions; fraudulent concealment of cause, 77
medical service plan; liability of health foundation, 1000
municipality; physicians liability under statute, 1398
municipality; statutory liability.

nuticipality; physicians hability and statute, 1398
municipality; statutory liability, 1398
murses; authority to request prospective
patient to act as assistant, 78
nurses; hospital; liability for negligence of,
1242

operations: unauthorized; assault and bat-tery, 1319 pregnancy; mistaken diagnosis, 1319 pregnancy; roentgenograms; failure to make, 1319

prophylactics; tetanus antitoxin; failure to use, 401 refrigerant; eye injury not treated, 1320 reentgen rays; burns, 78 reentgen rays; prospective patient injured when assisting nurse, 78 reentgenograms; failure to make in pregnancy, 1319 specialists; relicions

1319
specialists; reliance on diagnosis of attending physician, 1319
teeth; fragments not removed by dentist, 77
tetanus;
tonsilice of attributed
to net

tumor;

MEDICAL PRACTICE ACTS: birthmarks; removal by unlicensed persons, 1321 chemists; birthmarks removed by, 1321 chiropodists; diathermy used by, 1398 chiropodists; drugs used by, 1398

chiropodists; surgery practiced by, 1398 chiropractic; as practice of medicine, 166 chiropractic; fraudulent device without scope of license, 322

of license, 322
diagnosis; fraudulent methods used by practitioner, 250
diathermy; use of by chiropodist, 1398
"doctor"; naprapath's use of title, 481
drugs; naturopath's right to use, 166
electroptherapy; fraudulent device without scope of license, 322
etherator; use as justification for license revocation, 322

evidence; pamphlets with imprint of prac-titioner, 481 herbs; use by naturopath, 166 injunctions; restraint of enforcement, 919

licenses; fees uncollectible by non-licentiate,

licenses; foreign graduates; foreign dicensure requirement. 77

licenses; revocation; absence of specific authorization, 250

licenses; revocation; aiding unlicensed per-son, 1321

son, 1321
Ilcenses; revocation; "etherator" employed by practitioner, 322
Ilcenses; revocation; fraudulent diagnostic methods used by practitioner, 250
Ilcenses; revocation; fraudulent mechanical device used, 322
Ilcenses; revocation; gross immorality, 322
Ilcenses; revocation; injunction to restrain hearing, 919
Ilcenses; revocation; procedure must be

licenses; 919
licenses; revocation; procedure must be strictly followed, 1400
licenses; revocation; repeal of specific authorization, 166

ilicenses; revocation; unanimity in board vote mandatory, 1400 naprapathy; practitioner's use of title "doc-tor," 481

naturopathy; fraudulent device without scope

of license, 322
naturopathy; right of medical board to revoke

Heense, 166
naturopathy; use of drugs, 166
physiotherapist; right of medical board to
revoke license, 250

schools; graduates of foreign schools; foreign

Schools; Raddaces of Foreign Schools, Foreign licensure requirement, 77
NAPRAPATHY: See Medical Practice Acts
NARCOTICS: osteopathy in relation to, 1320
NATUROPATHY: See also Medical Practice

criminal abortion performed by practitioner, NURSES:

RSES: authority to request prospective patient to act as assistant. 78 patient to ace as assistant, 15 first-ald negligently rendered by nurse; em-ployer's liability, 1159 hospital; liability for negligence of, 1212 special; charltable hospital's liability for in-

special; charitable hospital's liability for injury to, 1399

OPTOMETRY: agreements in restraint of practice, 1241

OPTOMETRY PRACTICE ACTS: corporations;
practice of optometry by, 402
professional status of practitioners, 402

OSTEOPATRY: narcotics; right to use, 1320
practitioner as a "licensed physician," 1320
PARALYSIS: infantile; immobilization treatment; malpractice, 1318

PARTNERSHIPS: agreements in restraint of
practice, 166

Practice, 166 PHARMACISTS:

PHARMACISTS: prescriptions; liability for crror in compounding, 1001
POISONING: carbon monoxide as "poison,"

lead; metallic breast shields as cause of, 1242

1242
PRESCRIPTIONS: error in compounding;
Hability of pharmacist, 1001
PRIVILEGID COMMUNICATIONS: autopsy
finding as within rule, 1399
common law rule, 920

examining physicians; in workmen's com-pensation cases, 250 waiver; insurance application as constituting,

1399 workmen's compensation acts in relation to,

REFRIGERANTS: sulfur dloxide; blindness, 1390

SCHOOLS: medical: See medical practice acts, schools

SULFUR DIOXIDE: blindners caused by; mal-practice, 1320
TANES: hospitals, charitable; tort liability in relation to taxable status, 1515
TETANUS: antitoxin; physician's failure to use, 401

TRAUMA: cancer in relation to, 557, 1400

MEDICOLEGAL ABSTRACTS—Continued
WORDS AND PHRASES: "deceitful and misleading," 482
"for," 1319
"gross immorality," 322
"herbs," 166
"in any manner," 1398
"interns," 1515
"naprapathy," 481
"physician," 1329
"poison," 1400
"students," 1515
"take," 482
"unprofessional," 482
WORKMEN'S COMPENSATION ACTS: cancer,
557, 1400
diseases; when compensable, 78
enteritdis, bacillius, 78
medical services, nurse's negligence; liability,
1159
medical treatment, operations; refusal to

medical treatment, operations; refusal to

undergo, 1160 nurses; negligence of; liability, 1159 privileged communications, 250

### N

N. E. A.: See National Education Association N. N. R: See American Medical Association, and under names of specific products as Destrose, Liver, etc. N. Y. A. See National Youth Administration NALS, dermatitis from nall polish, 1170 fusospirechetal onychia and paronychia, [Benedek] 1256—ab mycosis, copper iontophoresis for, 181 NAPHTHA jags, possible urticaria from solvent, 1169

Indicates 1230—an mycosis, copper iontophoresis for, 181
NAPHTHA jags, possible urticaria from solvent, 1169
NAPHTHONYDROQUINONE, 2 methyl, diphosphoric acid ester, antihemorrhagic effect, [Davison] 1413—ab
NAPHTHOQUINONES Having Vitamin K activity: See Menadione; Vitamin K activity: See Menadione; Vitamin K ACHAPATHY See Medicolegal Abstracts at end of letter M
NARCOLEFSY. See Sileep disorders
NARCOTICS: See also Morphine adequacy of supply, Bureau report, 1475—08 emergency field units, recommendations, 394 preparations (evempt), record keeping; U S. Supreme Court decision, 1144—E, 1475—08 theft of, warning on, N Y, 548
Uniform Narcotic Drug Act, (Bureau report) 1479—08
U. S. Narcotic Hospitals, insane persons treated in, 910
NASAL: See under Nose Sinusitis: See Sinusitis, Nasal
NASHVILLE Dept. of Health contraceptive service, [Beebe & Overton] *1045
NASOPHARYNX: See also Adenoidectom infection, atlas-axis dislocation after, [Martin] *574
NATION'S health: Dr. Goldwater's optimistic outlook, 468—08
NATIONAL: See also American, International; list of societies at end of letter S
Academy of Sciences, (closed building to public), 157
Conference of Governmental Industrial Hyglenists, 1153
Conference of Governmental Industrial Hyglenists, 1153
Conference on Medical Service, 393
Congress of Parents and Teachers, A. M. A. cooperation with, 1473—08
Defense: See also Medicine and the War Defense Health Clinics time changed for broadcast, 241
Dental Congress, 5th, Mexico, 476
Diabetilk Food Company, 1241—Bl
Educational Association, A. M. A. cooperation with, 1473—08
Federation of Business and Professional Women's Clubs, Inc., 382—E
Foundations
Gastroenterological Association, 822, 834
Industrial Conference Board Study medical and

Women's Clubs, Inc., 382—E
Foundation for Infantile Paralysis: See
Foundation for Infantile Paralysis: See
Foundations
Gastroenterological Association, 822, 834
Industrial Conference Board study medical and
health programs. [Bristol] 650—ab
Institute of Health, (Division of Industrial
Hygiene) [Seeger] 641—ab; (Dr. Badger
named assistant director) 832; (Dr. Heacock to coordinate work of state divisions)
1153; (mobile unit in industrial hygiene
service) 1233
Institute of Hygiene, Ecuador, 550
Malaria Society; Journal of National Malaria
Society, 311
Medical Service scheme in Australia, 914
Negro Health Week, 311
Noise Abatement Council, 745
Proctologic Certification Committee, 472
Research Council, (subcommittee on signs of
early nutritional failure) #615, (conference appoints Committee on Drugs and
Medical Supplies) 1298—E; (Rockefeller
Foundation gift for Welch fellowship) 1310
Safety Council, (prize winners in contest) 1506
Society for the Prevention of Blindness (surve) of industrial eye injuries) 157
Tuberculosis Association, 1153
Tuberculosis Committee, Argentina, 1310
Wholesale Druggists' Association indicted, 831
Youth Administration, (program of health education) 991

NATURAL Mineral Extract, 247—BI NATUROPATHS, Emile Carpentier, 837—BI NATUR-TABS Co, 1241—BI NAUSEA: See also Seastchess; Vomiting relation to estrogen treatment, [Greene] 171

NAUSEA: see also Serricaness. Voluntary relation to estrogen treatment, [Greene] 171
—ab

NAVY, U S · See also Medicine and the War

U. S., (recognizes allergy as a specialty) 465; (specific gravity of personnel in relation to weight, height, etc) [Welham & Behnke]
*498. (provision of physicians and dentists for Medical and Dental Corps) 630; (citizenship and commission) 634; (addresses of naval commandants) 638, (health of, for 1940) 746

NAZHSM See Germany
NEBRASKA HEALTH ALMANAC, 823—E
NEGRO Medical Society, 310
NECK. See also Throat care of, to prevent arthritic deformity, [Joplin & Baer) *941
infection, atlas-axis dislocation after, [Martin] *374
pain, laminagraphic diagnosis, [Jostes] *353
roenigenology of, course in, Minn., 1150
NECROPSY See Autopsies
NECROPSIS. See Brain; Pyelonephritis, necrotizing
NEEDLES chemical disinfection, 94

NECROSIS. See Plant, tizing
NEEDLES, chemical disinfection, 94
passage into blood stream, [Shapiro] 921—ab
NEGROES, cerebral necrosis in sickle cell disease, [Connell] *893
children, stature and weight, [Meredith] 251

contraceptives used by, [Beebe & Overton] *1045

*1045
National Negro Health Week, 311
Nebraska Negro Medical Society organized, 310
physicians, medical officers graduate at Carlisle Barracks, 1458
physicians, opportunities for graduate study
in the South, [Cornels] *524
registrants for military service, per cent rejected, [Rowntree] *1225
skull thickness of, compared with white persons, 857

skull thickness of, compared with white persons, 857
typhoid in the South: Mississippi vs Connecticut. [Whitfield] 839—C
NEOARSPHENAMINE compared with mapharsen; toxic reactions and deaths, [Levin & Keddle] *369
Treatment See Cardiovascular Disease, syphills, Syphilis, treatment
NEOPLASMS See Cancer, Sarcoma; Tumors; etc.; also under region or organ affected
NEOSYNEPHRIN hydrochloride, Inhalants in oily vehicles. (Council report) 378
nose drop contamination in dropper bottles, [Gompertz & Michael] *1287
NEO-VIM (Neo-Vem) 247—BI
NEPHRECTOMY: See Kidneys, excision
NEPHRITIS See also Pyelonephritis acute hemorrhagic, tonsiliectomy for chronic tonsilitis during, 855
acute, treatment; immediate results and those 10 years later [Murphy & Peters] *183
chronic, due to obstructing ureteral lesions, [McDonald & Ballenger] 998—C; (reply) [Murphy] 998—C
glomerular (acute), urinalysis, Addis count blood sedimentation in [Rubin], 1254—ah glomerular, sulfanilamide for, [Garrahan] 673—ab
Hypertensive: See Nephrosclerosis

glomerular, sulfanilamide for, [Garrahan)
673—ab
Ripertensive See Nephroscierosis
intersitifal exudative, [Bell] 1414—ab
pathogenesis of Bright's disease, total protein
and globulin in urine, [Blackman] 485—ab
Tuberculous: See Kidneys, tuberculosis
NEPHROSCLEROSIS, benign, malignant, 6 surgleal methods, [de Takats & others] *501
NEPHROSIS See Kidneys, disease
NERVES: See also Nervous Sistem; Neuralgla, Neuritis, Neuropathy, etc.
optic, choked disk in blood dyscraslas, [Watkins] 221—ab
optic, neuropathy in pellagra, [Mendoza
González] 928—ab
optic, primary tumors, [Pereira Gomés] 849—ab

NEURITIS: See also Neuropathy brachiai, in epidemic form, [Wyburn & Mason] 1165—ab of trochlear nerve after influenza; use of gelatin [Gotthoffer] 568 polyneuritis (acute) in pollomyelitis epidemic, dagnosis, [De Sanctis & Green] *1445 polyneuritis (infectious) in watchmaker, 1526 ulnar, due to elbow arthritis, [Jiménez Dias] 928—ab

NEUROBUCCAL Pouch: See Cranlobuccal NEUROCIBCULATORY Asthenia: See Asthenia,

neurocirculatory
NEUROFIBROMATOSIS, relation to optic nerve
tumors, [Pereira Gomes] 849—ab
NEUROLOGY, course in, at George Washington

NEUROLOGY, course in, at George Washington U., 655

Journal of Neuropathology and Experimental Neurology, 1454—E

NEUROPATHY, manifestation of mainutrition, [Jolliffe & others] *946
optic, in pellagra, [Ibendoza Gouzzlez] 928—ab peripheral, effect of adenylic acid on, [Vilter] 1410—ab
vitamin deficiency disease due to food ration, France, 475
NEUROPSYCHIATRY, Institute, (Mo) 239; (Conn.) 828

France, 415
NEUROPSYCHIATRY, Institute, (Mo) 239;
(Conn.) 823
NEUROSIS, Cardiac: See Asthenia, neurocirculatory
cause of arm and leg pains in boy, 261
gastric, functional, 857
There is nothing physically the matter, [Miller & Frey] 319—C
NEUROSURGERY: See also Buckache depart created at Bowman Gray School, 311
NEUROSYPHILIS See also Dementia Paralytica in Hawail, [Kepner] 1009—ab treatment, follow-up to determine efficacy, [Rajka] 412—ab treatment, malaria plus arsenicals or mapharsen, [Dattner] 1249—ab
NEUROTROPIC Virus: See Virus
NEUROROR Rais: See Cyclotron
NEUTROPENIA, malignant: See Agranulocytosis, Acute
NEW AND NONOFFICIAL REMEDIES: See

Sen, [Datiner] 1249—an
NEUROTROPIC VITUS: See Virus
NEUTROPENIA, majs: See Cyclotron
NEUTROPENIA, malignant: See Agranulorytosis, Acute
NEW AND NONOFFICIAL REMEDIES: See
American Medical Association; and under
names of specific products
NEW ENGLAND Health Institute, 1381
NEW TWIN-Arc Sun Lamp, 247—RI
NEW YORK: See also Columbia University;
Corneil University, etc.
Academy of Medicine, (sponsors lectures for
public) 59; 909; (seeks million dollar endowment) 59; (radio talks on motale)
900—E: (Friday afternoon lectures) 909;
(Inter-American Bureau) 909
City, civilian defense plans in, 640
City, cooperation with Red Cross; rest ceaters: rehousing; community feeding, 737
City hospitals modify internship, 333—SS
Diabetes Association, Inc., symposium, 909
Medical College (Dr. Hetrick named dean)
657; (goes on 3 year plan) 761—SS
Psychoanalytic Society and Institute, statement by, 1507
Society for Child Psychiatry organized, 741
State, workmen's compensation medical panel
system, [Kaliski] 645—ab; [Bloom] 652
—ab; 653—ab
University, (activities) 334—SS; (goes on 3
year plan) 761—SS, (Student Loan Fund)
1020—SS, (tuition waived for military men
in course on amputations) 829
water supplies, protection of, 1457
NEWBORN See Infants, Newborn
NEWSPAPERS: See also Journals
A M A press releases, 1463—08
Detroit Free Press publicity on Koch's cancer
treatment, 1373—E
Portuguese language for Brazilian press, 831
Waukcgan News-Sun, cooperates in menial
hygiene project, 547
NIACIN and niacin amide, (Council report) 819;
823—E
NICOTINE See Acid, nicotinic; Tobacco
NIGHT BLINDNESS, in soldiers, [Witthower]
489—ab, 563—ab
symptom of hepatic disorders, [Hasche-Klüunder] 850—ab
vitamin A and dark adaptation; effect of
alcohol, benzedrine and vitamin C, [Yudkin]
1521—ab
NHSwab' See Oxyurlavis
NIKETHAMIDE, N. N. R. (description), 1052;
(Ereon, Ende Lackside, Urjohn) 1052
NIES, Walter L., memorial fellowship, 637
NITRATES, mannitol bevanitrate as vasodilator,
181
NITRITES, inhale octyl nitrite for anglas pectoris, [Freedberg]

NITRITES, Inhale octyl nitrite for angins pectoris, [Freedberg] 167—ab
NITROGEN Inhalation asphyxia, resuscitation
in, [Birnbaum & others] *1364
role in syntheses by bacteria in intestine,
1219—E

NITROGLYCERIN: See Glyceryl trinkrate diNITROPHENOL cataracts. 568 triNITROTOLUENE (TNT) health hazard, [Soborts] 755—ab in urine, Webster test for, [Ingham] 819—ab jaundice, [Evans] 848—ab

VOLUME 118 NUMBER 17 NITROUS ONIDE inhalation asphyvia, resuscitation in, [Birnbaum & others] *1364

NISF, conservation of hearing in industry, [Bunch] *588, [noise level meter] *591 deafness in a viators from, [Bunch] 410—ab Autional Aolse Abatement Council, 745

NOMENCLATURE See Terminology

NORTH CAROLINA, University of See University Nersity

NORTHWEST Regional Conference See National Conference on Medical Service

NORTHWESTERN University, (Student Medical Society) 332—SS, (dept of visual education—Schweppe Fund) 332—SS, (Wesley Hospital opened, Chicago) 655, (hospital unit leaves for active service) 738, (fraternites activities) 764—SS, (on accelerated schedule, blood donors) 1020—SS

NOSE See also Nasopharynx, Otorhinolaryngology schedule, blood donors) 1020—SS
OSE See also Nasopharynx, Otorhinolaryngology
Accessory Sinuses See Sinusitis, Nasal
Colds See Colds, Hay Fever, Rhinitis
drop contamination in dropper bottles, [Gompetz & Michael] *1287
Filtro-1 apor Ansal Filters, 978
Hayin Ansal Filter, 49
nasal inhalunt preparations containing petrolatum, (Council report) 378
sodium sulfathiazole for nasal spray and
sinusitis 567
sodium sulfathiazole in, 261
sodium sulfonamides solutions used in, urge
caution, [Klestadt] 998—C, (reply) [Fletcher]
998—C
sulfathiazole pronylene glacel spray for 998—U sulfathizole propylene glycol spray for, [Yonkman & others] 1317—C (correction)

[100kman & others] 1011—C (contention)
1507

NOSTRUMS See also under names of specific nostrums and diseases control sale of England 158

NOVOCAIN See Procaline hydrochloride
NOVOTELLOV, S, method for wounds and compound fractures, [Orr] 917—C

NUCLEOTIDE See Adenine sulfate
NUFFIELD (Lord) guaranty fund, insurance to meet hospital bills, 62

NUGA TONE, 163—BI

NU-NODE Products 163—BI

NU-NODE Products 163—BI

NU-NODE Products 163—BI

NU-NODE Products 163—BI

NU-NODE Products 163—BI

NU-NODE Products 163—BI

NU-NODE Products 163—BI

NU-NODE Products 163—BI

NU-NODE Products 163—BI

NU-NODE See also Medicolegal Abstracts at end of letter M

Arm Service See Medicine and the War, nurses

Nues M Burland Stain by Japanese 740

Army Service See Medicine and the War, nurses
Miss M Burkwall slain by Japanese, 740 number, in all hospitals, *1066 refresher courses for, Detroit, 147 tuberculosis in students, [Hastings] 668—ab URSING Care See under name of specific disease Industrial See Industrial Health

Industrial See Industrial Health
Manual of Essentials of Good Hospital
Nursing Service, (Council report) 1148 OS.

-OS
Military See Medicine and the War
NUTRITION See also Diet, Food, Infants
feeding, Vitamins
A M A Council on Foods and Nutrition
See American Medical Association
anemia (macrocytic hyperchromic) [Moore]
1161-ab

herd from viewpoint of, Sherman and Pearson consider, 1218—E division of, Canada, 473 experiment in two sections of Richmond selected as test areas, 1152 fellowship at Pittsburgh U by Swift & Co,

or Foodex advertising mislending 1450 Foundation, Inc., created 1233 institute on, Michigan, 829 malnourished, adenyile acid effect on, [Vilter]

mainourismen, anemyine acid cheeces, 1410—ab
mainutrition, early signs National Research
Council committee report *615
mainutrition (marginal), devirose tolerance
test in [Robinson] 323—ab
mainutrition, prevalence of, [Joliffe & others]

meetings on, Philadelphia, 1151 National Defense and See Medicine and the War nutrition

War nutrition
symposium on, 542
Wartime See Medicine and the War nutrition World War II European Front
work in relation to, [Iv3] *569, (joint Council report) *621
ACCTALOPIA See Night Blindness
NLON, as suture, [Narat] 488—ab

OBESITY in children, grid technic, [Bruch] Index of [Behnke & others] *495, [Welham & Behnke] *498

nostrum Executive Sales Corporation, 837 nostrum
nostrum
Thinnla, 1388—BI
trentment, dinitrophenol entaracts 568
waiver of physical defects for limited service
officers
1146 OBITUARIES See List of Deaths at end of OBSTETRICIANS, American Association of, Foundation Prize, 60 OBSTETRICS See also Abortion, Cesarean obstetracts see also Abortion, C Section Labor American Board of, examinations 472 American Congress on, meeting 993 Anesthesia in See Anesthesia
Alkansas Society of organized, 469
consultation service, New York, 657
courses in, (at Chicago Lying In) 58, (Nebrasha) 1308
OBSTIPATION See Constitution

OBSTIPATION See Constipation
OCCIPITAL Bone See Atlanto Occipital Joint
OCCUPATIONAL Dermatoses See Industrial

OCCUPATIONAL Dermatoses
Dermatoses
Disease See Industrial Diseases
therapists, number in all hospitals, *1065
theraps schools of, approved by A M A,
*1135 (list of) *1136 1497-08

OCTYL nitrite inhalation in angina pectoris
[Freedberg] 167-ab

OFFICE of Civilian Defense See Medicine and
the War
of Inter American Affairs, Latin American
program, 993

program, 993
of Price Administration See Medicine and the War

the War
of Procurement and Assignment of Physicians,
etc See Medicine and the War
Workers See Industrial Health
OHIO See also Cleveland Toledo
hospitals incidence of pellagra in, [Bean &
others] *1176
State University, (Dr Bigelow acting dean)
1200 1309

IL See also Fat, Lipids, Olive Oil, etc action of oils and oil solvents on skin [Line & Blank] *813

Aspiration into Lungs See Pneumonia Ilpid Blended, containing Vitamins A and D, N N R 1216 cutting dermatitis from [Schwartz] 85-ab

dust laying, for bedclothes, [van der Ende]
1416—ab
Iodized See Iodized Oil

rouized See Iodized Oll
machine oil acne, [Suga] 258—ab
Migic Oil Co and Carl G Schnepel, 1513
Mineral See Petrolatum, liquid
soap manufacture using, [Lane & Blank]

**809
OINTHENT See also Androgens Sulfathrazole matching ointment colors to skin of face, 936
OKLAHOMA University of See University
OLD AGE See also Life, duration of anteriosclerotic aneurysms and ectasia of thoracic aorta, [Ruffin] 167—ab arteriosclerotic psychoses and, [Rothschild] 1248—ab

basal metabolism in [Magnus Levy] *1369 causes of cataract, [de Ruyter] 756—ab effect of vitamins B and C on patients, [Stephenson] 1333—ab new unit of gerontology, Dr Shock in charge of, 241

of, 241
psychology of aged, 661
stomach emptying time, [Van Liere] 252—ab
OLEOMARGARINE, vitamin D added to, to be
doubled 1234
vitamin A added to Council report, 1469—OS
OLICURIA See Urine
OLIVE OIL as a detergent, [Line & Blank]
*807

*807
O'MEARA R A O, diphtheria gravis, 301—E, 380—E
O'MEGA Home Use Portable Machine, 247—BI
O'MENTUM, chorionic villi implants in, [Lazarus] 1329—ab
Graft See Kidneys surgery
ONYCHIA See Nails, Paronychia
OPERATION See Surgery, under names of specific organs, regions and discusses
OPHTHALMIIA Gonorrheal See Conjunctivitis
OPHTHALMIIIS, lymphogranuloma veneroum, sulfadiazine in, [Oliphant & others] *973
OPHTHALMIOOT See also Eyes Vision, etc.

etc
American Academy of, (4 W A joint committee on industrial ophthalmology) 61,
(change in meeting) 992
virtion, course in, at George Wishington U,

virtion, course in, at George wishington U, 153
Brazillan Congress of (fifth) 659
Brazillan Council of, 1236
Howe Lecture of, 1150
industrial A W A Section committee on, [Snell & others] *610
Mexican Society of, 659
Ophthalmological Ibero Americana 61
Pan American Congress of, 61, 659
research, laboratory for U of California, 153
OPIUM See also Morphine
camphorated tincture of (paregoric), restrict sale, Bureau report, 1475—08
camphorated tincture of (paregoric), Supreme Court on keeping record 1144—E 1475—08
traffic, illicit and Japanese, regulations for soldiers, 736—E
OPTIC Nerve See Nerves
OPTOMETRY See Wedicolegal Abstracts at end of letter M

OMETRY See end of letter M

ORAL CAVITY See Mouth
ORATION See Lectures
ORBERT Asthma Treatment, 317—BI
ORCHIECTOVIN See Testis tumors
OREGON Physicians Service Bureau, 654—OS
ORETON, decrease of potency in man of 60, 622
ORGANIZED MEDICINE See American Medical Association, Societies, Medical ORIENT See Chima, Japanese, etc
ORITONE Laboratories %37—BI
"OROSEPTOL," Acme Laboratory 317—BI
ORR Method See Fractures Wounds
ORTHOPEDICS, Canadian unit for Scotland, 1234 1234
Hospitals See Hospitals orthopedic
mechrnic positions open, 541
Surgeons, American Academy of, election, 745
ORTHOPSYCHIATRY, American Association,

472
OSBORNE Medal See Prizes
OSLER'S PRACTICE OF MEDICINE and the Kenny method [Hans] 399—C
OSLO breakfast, value of, (joint Council report) *621
OSSIFICATION See Bones

OSSETICATION See Bones
OSTETIES fibrosa due to fluorine poisoning, [de Senarclens] 564—ab
OSTEO ARTHRITIS of knees massage for 1170
treatment splints, corsets, etc., [Joplin & Baer] *937
weather, climate and, role of dampness and chilling 567

OSTEOCHO DRITIS, juvenile chondroepiphysitis

OSTEOCHO DRITIS, jurenile chondroepiphysitis hypothyroidism, desicated thyroid for, [Schrefer] 667—1b OSTEONIELITIS, acute hematogenous conservative treatment also with sulfamilamide [Wilensky] 556—C after tooth extraction, and sodium sulfonamide, [Klestadt] 998—C, (reply) [Fletcher] 998

-C colon bacillus [Muto] 756-ab rejected for military service, 1147
OSTEOPATHS, cult practice acts, Bureau report, 1478-05 employment as interns in army hospitals, 1477 -ns

OTTIS MEDIA, acute, sulfauliamide, surgery and antiserum for [Cuttin] 1011—ab chronic, waiver of physical defects for limited service officers 1146

service officers 1146
meningitis, [Weinstein] 1330—ab
treatment, myringotomy sulfonamides
mune serum, [Ganz] 1250—ab
OTOLARY GOLOGIST in the war, 1151

OTOLARIAGOLOGIST in the war, 1151
OTOLARIAGOLOGI, American Academy of,
meeting changed, 892
OTORHINOLARIAGOLOGY, American Laryngological Rhimological and Otological Soclety, 309, 310
ONARY See also Corpus Luteum Ovulation
chorionic villi implants in, [Lazarus] 1329
—ab

chorionic villi implants in, [Lazarus] 1329

-ab
failure menopause in women vs climacterle
in aging men, 458—E
insufficiency vitamin diethylstilbestrol treatment [Byrne] 1411—ab
preparation, notice to manufacturers of, 394
tumors dermold, teratoma and twins, [Fdmonds] 844—ab
tumors Krukenberg s [Leffel] 1329—ab
OV-RWEIGHT See Obesit
OVIDUCTS chorionic villi implants in, [Lazarus] 1329—ab
OVLATION, effect of gonadotropic substance
on [Brewer & others] *278
'Safe Period See Birth Control
OWLS, burrowing insect vectors for bubonic
plague from 461—k.
ONIGN See also Air
active (nascent) treatment of gas gangrene,
981—E
cerebral consumption after head injury,
[Lindquist] 1324—ab
deficience where the addition of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the seed of the s

981—E cerebral consumption after head injury, [Lindquist] 1321—ab deficiency, by poxia hazard of operating room, [Batten] 1163—ab in Blood See Blood resuscitation in asphysia, [Birnbaum & others] *1364
ONLRIASIS, appendical, [Ashburn] 559—ab, [Schwarz] 1006—ab treatment, MH cellophane tipped swabs (Hall s) 93 treatment phenothiazine, toxicity of, [Hubble] 927—ab

927-ab

PADFREWSIA Hospital opened Fdinburgh Cl PAIN See also Backache, Headache, under disease organ or region affected asthenia and aching with gain in weight C79 growing pains in box, 201 Relief of See Ancsthesia, Pillows arrange-

PAINTS chemical analysis of type, (spray brush, etc.), [Greenburg & ethers] *75 exposure to toluene effect of [Greenburg & others] *573 [von Octtingen] *579 Radioactive See Watch dial painting PALATF, eleft surgical correction, 1170

PALESTINE in wartime, 912; 1509
PALEST, Cerebral See Paralysis, cerebral
Shaking See Paralysis agitans
PAN AMERICAN See also Inter-American;
Latin American
A M A Pan American Session See American Medical Association
Congress of Ophthalmology, 61; 659
Congress of the Blind, 745
Congress of the Child 312, 748, 993
Congress of Tuberculosis, 550
medical congresses, [Stice] *234
Scientific Confederation, 993
PANAVIA CANAL Service, U. S Civil Service
Commission positions open soon in, 473
PANAROID, Science Laboratorics, 313—BI
PANCRIAS See also Diabetes Wellitus
aberrant tissue (on wall of duodenum) with
by perinsulinism, [Smith] *454
degenerative lessons (early), [Wallace] 1332
—ab
excision, loss of both fat in dog, 936

-ab
excision, loss of body fat in dog, 936
Inflammation See Pancreatitis
island of Langerhans hyperfunction in pancreatitis, [Grott] 257—ab
Secretion See Insulin
tissue extract (deproteinated) with catheterization, [Neptune] 487—ab
PANCREATITIS, acute hemorrhagic, as cause
of sudden death 1234
chronic, with islet hyperfunction, [Grott] 257
—ab

chronic, with islet hyperfunction, [Grott] 257

—ab

surgical aspects; serum amylase test, [Elman] +1255

PANDICULATOR 1240—BI

PANHYPOPITUITARISM, [Fraser] 1165—ab

PAPAIN, carold injection of ganglion (tumor) dangerous, [Re]] +516

PAPER See also Newspapers rationed, England, 1508

PAPILLOMA, genitoanal, caused by amebas, emetine for, [Goenawan] 326—ab

PARAFFIN bath, [Hibben] *1041

Liquid See Petrolatum, liquid wax applied to hand to piecent arthritis deformity, [Joplin & Baer] *939

PARALYSIS See also Hemiplegia, Paraplegia abducens due to injury cause of strablismus, 93

Actions: See also Parkinsonism

PARALISIS See also Hemiplegia, Parapigna abducens due to injury cause of strabismus, 93

Agitans See also Parkinsonism agitans, pyridoxine for, [Meller] 1164—ab cerebral palsy—spastic type, surgical correction, [Green & McDermott] *434

familial periodic, in toxic golter, thyroidectomy cures, [Hildebrand] 753—ab familial periodic (paroxysmal paralysis), [van der Schaar] 852—ab General See Dementia Paralytica Infantile See Poliomyelitis of Bladder See Bladder of serratus muscle, a brace for treating [Wolf] 171—ab of Vocal Cords See Vocal Cords progressive bulbar, ritamin E and alpha tocopherol for, [DeJong] 484—ab Spastic See Paralysis, cerebral tic, in South Carolina, [Beach] 1014—ab PARAPLEGIA, surgical correction, [Green & McDermott] *434

PARASITES, Intestinal See Intestines PARATHYROID, deficiency (postoperative), dihydrotachysterol for, [White] *136
hyperactivity, Werner's syndrome, [Oppen heimer] 251—ab hypoparathyroidism, large doses of vitamin D-prepurations in (Council decision) 617 tetany, dihydrotachysterol, calcum is vitamin D for, [Sevinghaus] 1322—ab PARATYPHOID, B cases, complement fixation and other tests, [Anzal] 831—ab immunization (active) with single dose of A and B, [Leon] 1418—ab may modified [Hal-

851—ab
immunization (active) with single dose of A
and B, [Leon] 1418—ab
typhoid-tetanus vaccine, new modified, [Hallauer] 1166—ab
vaccine (T A B) inoculation, epidemic myositis after, [Williams] 1165—ab
PAREGORIC. See Opium camphorated tincture
PARENTHOOD, PARENTS See Birth Control
Families; Maternity, National Congress of
Parents and Teachers
PARESIS General See Dementia Paralytica

Parents and Teachers
PARESIS, General See Dementia Paralytica
PARKER-Jackson-Lemon Syndrome, [Reich & Runsey] *1200
PARKINSONISM See also Paralysis agitans fibriliation and tremor, compared, [De Jong & Simons] *702
PARONYCHIA, fusospirochetal, [Benedek] 1256
—ab

PARONYCHIA, Insertable

And
PARTNERSHIPS. See Medicolegal Abstracts at
ind of letter M
PARTURITION' See Labor
PATELLA, lotal extirpation in chondromalacia,
[Fribergl 490-ab
PATENT MEDICINES See Nostrums
PATHOLOGISTS, American Association of, meeting, 992
Committee of London Sector, report on hos-

ing, 992 of London Sector, report on hospital infection of wounds, 395 Rhode Island Society of, organized, 1152

PATHOLOGY course at Woman's Medical College, 311 PATIENTS

lege, 311
PATIENTS See Disease, Hospitals, patients,
Medical Service, Old Age; Surgers, under
names of specific diseases
Transport of See Ambulance
PEANUT feeding, bone changes due to, [Kohno]

PEARL Harbor: See World War II, Pacific

PEARSON, C S MODERN BREAD FROM THE VIEWPOINT OF NUTRITION, 1218—E PECTIN solution, use as blood substitute, [Hartman] 1161—ab PEDIATRICIAN, reducing communicable dis-

PECTIN solution, use as blood substitute, [Hartman] 1161—ab
PEDIATRICIAN, reducing communicable discases in soldiers, [Davison] 410—ab
reducing see also Children, Infants
Academia Nacional de Medicina, prize to Dr
Garrahán, 659
American Academy of, regional meeting postponed 831
American Pediatric Society, 1233
Chilean Congress of 243
courses in at U of California, 391
lectures on, Neb., 1308
Pan American Congress of the Child, 312,
748, 993
PEDICULI See Lice
PEDICULI See Lice
PEDICULI See Lice
[MacHaffle] 1251—ab
PEELING See Skin Expollation
PEIPING University College of Medicine closed
by Japanese, 1455
PELLAGRA, cause of death in U S, 1933 1938,
[Jolliffe & others] *945
etiologic role of liver insufficiency, [Harris]
1405—ab
incidence, in Ohlo Hospitals, [Bean & others]
*1176

incidence, in Ohlo Hospitals, [Bean & others] optic neuropathy in, [Mendoza González] 928

**1176
optic neuropathy in, [Mendoza González] 928
—ab
tteatment, adenylic acid, [Vilter] 1410—ab
treatment, nlcotinic acid anide, [Schroeder]
177—ab
PELVIS. See also Hip, Thigh
abscess ruptured rectally in acute appendicitis,
[Gottesman & Goldberg] *297
irradiation for uterus cancer, pneumoperltoneum to aid, [Sante] 482—ab
PENNSYLVANIA' See also Philadelphia
Medical Service Association, 1377—OS
pneumonia control study, [Stable] *440
University of See University
PENNTOUCLEOTIDE Treatment See Agranulocytosis, Acute
PENTOBARBITAL, effect on fibrillation and
tremor, [de Jong & Simons] *703
PENTOTHAL See Anesthesia
PEPTIC ULCER, gastric, complicating angina
pectoris, 1422
gastric, problem of, [Jordan] 1008—ab
gastroduodenal, present status, 1452—E
hemorrhage, prompt feeding for bleeding gastric and duodenal, [Nicholson] 667—ab,
[tan Meeteren] 676—ab
hemorrhage, rarious treatments appraised,
[Rafsky & Weingarten] *5
treatment, aluminum hydrovide effect on
phosphorus absorption, [Freeman] \$38—C
treatment, medical, of carcinomatous gastric,
misleading results, [Eusterman] *1
treatment, milk cream mixture hourly; x-ray
crater disappearance, [Dick & Eisele] *38,
[Luckhardt] 664—C, (reply) [Dick &
Eisele] 664—C
treatment, unine extracts, from pregnant and
nonpregnant, [Sandweiss] 168—ab
PERTLARITIS, ensitivity to soaps, 169
PERICARDITIS, adhesive, prognosis of survival
after first attack, [Dry] *265
suppurative, [Adams] \$45—ab
PERICARDITIS, adhesive, prognosis of survival
after first attack, [Dry] *265
suppurative, [Adams] \$45—ab
PERICARDITIS, adhesive, prognosis of survival
after first attack, [Dry] *265
suppurative, [Adams] \$45—ab
PERICARDITIS, adhesive, prognosis of survival
after first attack, [Dry] *265
suppurative, [Adams] \$45—ab
PERICARDITIS, See Bile Ducts, Stomen motility
PERICONEOSCOPY, application, [Hamilton] 668

—4b
PERICONEUM See also Omentum, Pneumoperfioneum

PERITONEUM See also Omentum, Pneumoper-

figners are also constituted by the second state of the spenic implants throughout cavity, after trauma, [Hamrich] 1329—ab sulfanilamide implanted in, [Mueller & Thompson] *189; [Jackson & Coller] *194
PERITONITIS, Appendical See under Appendicities

citis
convalescent 15 ophilized pooled plasma,
[Bower & others] *1284
ileus associated with, [Bisrard & others] *448
treatment, sulfonamides, [Epps] 1520—ab
PERMANENT WAVE See Hair
PERNICIOUS ANEMIA See Anemia, Pernicious
PERNIO. See Chilblains
PERSONALITY, traits in alcoholism, [Norbury]
*25
PERSPIRATION. See Sweat
PERTUSSIS See Whooping Cough
PERU, doctor needed for, 992

PETALSKIN Cosmetics, 247—BI PETIT Mal. See Epileps, PETROLATUM, Ilquid, and Intestinal Irrita-

PETIT Mal. See Epileps;
PETROLATUM, Ilquid, and Intestinal Irritation, 856
Ilquid, as a detergent, [Lane & Blank] *807
Ilquid, for intratracheal injections, (Council report) 680
Ilquid, podophyllin in, for condyloma acuminatum, [Kaplan] 1518—ab
nasal inhalant preparations containing, (Council report) 378
soft, treatment of chronic psoriasis, [Bigham] 926—ab
PETROLEUM PRODUCTS. See also Benzene, Kerosene, Petrolatum
photosensitization from, use of sun screen ointments, 769
PHAGE See Bacterlophage
PHAGEDENA, wound, [Callam] 1257—ab
PHAGOCYTOSIS, power of leukocytes increased in fever, 1371—E
PHALENE and Burtone, 247—BI
PHARMACEUTICALS See also Drugs, Phat macology, Pharmacopeia
A M A and American Pharmaceutical As sociation conference, 617; 900—E, 1145—E, 1372—E
American Pharmaceutical Association, pro-

sociation conference, 617; 900—E, 1143—E, 1372—E
American Pharmaceutical Association, program on sulfonamides, 991
American Pharmaceutical Manufacturers' As sociation Award of Distinction, 60 industry, progress in, in Brazil, 159 manufacturers of glandular preparations notice to, 394
manufacturers, status of, under A M A Council's Rule 11, 1469—OS
practice, fourth annual seminar on, Philadelphia, 991
Schering Corporation officials suspended 472
Therapeutic Research Corporation, 303—E. 748

T48
PHARMACISTS See also Medicolegal Abstracts at end of letter M
Ibsen, great Nordic dramatist, was a pharmacist, 507—ab number in all hospitals, *1065
PHARMACOLOGY, American Society for 993
PHARMACOPEIA. See also Formulary
U S, AND THE PHISICIAN, second series, (treatment of Jelion fever) [Soper] *274
(treatment of vertigo and syncope) [Welve] *529

(treatment of vertigo and syncope) [Welva]

*529

U S, XI, Leptome, 1466—OS

U S, XII, Committee on Revision, vs A V

A Council's view on progesterone, 1216

U S, XII, Convention, new by-laws and constitution, 1376—E

PHARMACY, A M A Council on. See American Medical Association

PHARYNX See also Nasopharyns

ethmosphenoidal epiglottidean syndrome, [Fel derman] 81—ab

ethmosphenoidal epiglottucan synatome, free derman] 81-ab PHENOBARBITAL Treatment See Fpileps; PHENO ISOLIN, 1512-BI PHENOL injection solution for hernia, 567 spray to control air borne infection, [Buch-binder] *728 PHENOLSILFONPHTHALEIN, N N R . (Lake-

PHENOLSULFONPHTHALEIN, N. N. R., (Lineside) 141

PHENOTHIAZINE, toxicity of, used in thread worm infection, (Hubble) 927—ab treatment of typhoid and dysentery carriers, [Cutting & others] *1447

PHENYTOIN SODIUM. toxicity, depressive cardiorascular action, 1312

toxicity disturbed memory, 679

toxicity disturbed memory, 679 toxicity, hyperplastic gingiritis, [Ziskin] 81

toxicity disturbed memory, 619
toxicity, hyperplastic ginglitiks, [Ziskin] 81
—ab
toxicity, untoward effects, [Finkelman & Arieff] *1209
Treatment. See Epilepsy
PHEOCHROMOCYTOMA of adrenal medulin with hypertension, [Crane] 1010—ab
PHI Delta Epsilon (defense bond campaign) 761—SS
Rho Sigma lectures honoring deceased fact with members at Texas 761—SS; 1021—SS
PHILADELPHIA College of Phutmacy and Science, fourth annual seminar, 291
PHLEBITIS: See also Thrombophiebitic after former childbirth, possibility of this occurring again, 1264
PHLEBOSCLEROSIS rote in arteriosclerosis [Lisa & others] *1256
PHONOGRAPH: See Heart sounds
PHOSPHORUS, absorption, aluminum hydrox ide effect on, [Freeman] 838—C burns, 1421
in Urine: See Urine radioactive, in neoplystic disease, [Kenrey] 1014—ab
PHOTOGRAPHY See Moving Pictures, Pot traits
PHOTOSENSITYITY See Light Sensitivity

photographs
trails
PHOTOSENSITIVITY See Light sensitifity
PHRYNODEINAL, similar to phyriasis rules
pilaris, 1726
PHI SICAL CHARACTERISTICS and body
weight, [Wetham & Behnke] *193

VOLUME 118 NUMBER 17 PHYSICAL DEFECTS: See also Handicapped in National defense program, [Sawyer] 641 —ab
in Selective Service registrants, 146; [Rowntree & others] *1223
nation's health, Dr. Goldwater's optimistic
outlook, 468—OS
waiver of, for limited service officers, 1146
PHYSICAL EDUCATION: See also Athletics;
Health education
business roomen proporte, 389—E Health education
business women promote, 382—E
program for public schools, Tenn., 745
program, France, 1155
PHYSICAL EXAMINATION: See also Physical
Defects; Physical Fitness
in National defense program, [Sawyer] 641 

PHYSICAL EXERCISE: See Athletics; Exercise

PHYSICAL FITNESS, fatigue and recuperation, [Hellebrandt] 409—ab grid (Wetzel) for evaluating, [Bruch] *1289 PHYSICAL MEDICINE: See Physical Therapy PHYSICAL REHABILITATION: See Medicine and the War, physical rehabilitation PHYSICAL THERAPY: See also Baths; Cyclotron; Diathermy; Hydrotherapy; Radium; Roentgen Rays; Ultraviolet Rays; etc., under names of specific diseases and organs American Congress of, 990; 1152

A. M. A. Council on: See American Medical Association

MANUAL, (Council report) 1468—OS medicologal aspects; preventing legal claims, [Hibben] *1038 technicians, number in all hospitals, *1065 technicians, schools for, *1136; (list of) *1137; (Council decision) 1149—OS; 1497—OS

PHYSICIANS: See also Medical Jurisprudence;

PHYSICIANS: See also Medical Jurisprudence;

—OS

"MYSICIANS: See also Medical Jurisprudence;
Medical Service; Surgeons; etc.
Age of and Military Service: See Medicine
and the War, physicians
American College of, annual meeting, 1233
American, Serving in England: See World
War II, European Front
avocations, American Physician's Art Association exhibit, 1381
avocations, Doctors Musical Society of Brooklyn, 1308
avocations, famous explorers; Living.stone and
Kane, [Holcomb] 330—SS
avocations, first hobby show, Wisconsin, 658
avocations, Weir Mitchell, famous novelist
and poet, 1022—SS
Awards to: See Prizes
British: See World War II, European Front
California Physicians' Service medical service plan, 150—OS; 654—OS
Call to Service: See Medicine and the War
calls (office, home and hospital) analysis of,
Calfornia, 654—OS
census by A. M. A. Bureau, 1480—OS; 1486
—OS
civil rights of in military service, protecting.

-08
civil rights of in military service, protecting,
(Bureau report) 306; 1478-08
College of Physicians of Philadelphia, 1020
-SS

Commissions (Military): See Medicine and

the War Courses for: See Education, Medical, gradu-

Courses for: See Education, Medical, graduate
Credentials: See Licensure
Deaths of: See also Deaths at end of letter D
Deaths of: Physicians Killed in Action: See
World War II. Pacific Front
deaths of, taxation of accounts receivable for
year of death, 149—0S; 1474—0S
deferment of, 462; 633
dispensing, record keeping of exempt narcotle preparations, 1144—E; 1475—0S
Do you know what physician—, 1019—SS
dollars for bonds, 536—E
Education of: See Education, Medical
Emigre: See Physicians, foreign
Eurolment for Military Service: See Medicine
and the War, enrolment
Fees: See Fees
Fellowships for: See Fellowships
"Flying": See Aviation
for Air Force: See Medicine and the War
Foreign: See also Licensure
foreign, complete survey of credentials by
A. M. A. Council, 1497—0S
oreign, emigré, in America, 1941 (correction: California law) 394
foreign, in Britain, 660
freedom of choice of, in industry, [Kaliski]
645—ab; [Bloom] 652—ab
Hospital: See Hospitals
low to safeguard himself against legal claims,
[Hibber] *1038

Hospital: See Hospitals how to safeguard himself against legal claims, [Hibben] *1038 Impostors Preying on: See Impostors in Industry: See Industrial Health in politics: distinguished politicians, 1508

PHYSICIANS—Continued in Selective Service: See Medicine and the War

Income: See Fees
Income Tax: See Tax, income
indigent, benevolent fund committee, Okla.,

Indigent, British medical war relief fund, 552 Industrial Practice by: See Industrial Health JOURNAL, percentage receiving, 1462—08 Killed in Action: See World War II, Pacific

Killed in Action: See World War II, Pacific Front
Lectures honoring: See Lectures
Licensing: See Licensure
Licensing: See Licensure
Licensing: See Licensure
Licensing: See Licensure
Licensing: See Licensure
Licensing: See Licensure
Licensing: See Licensure
Licensing: See Licensure
Licensing: See Licensure
Licensing: See Licensure
Licensing: See Malpractice
Medical Jurisprudence
Military Service: See Medicine and the War;
World War II
Negro: See Negro physicians
on Hospital Staffs: See Hospitals
Ordered to Active Duty: See Medicine and
the War, U. S. Army
Oregon Physicians Service Bureau, 654—OS
Photographs: See Portraits
Pioneer, contest on blography of, Neb., 991
ploneer, memorial for Dr. Joseph Nashe McDowell, 1308
Portraits: See Portraits
positions open for, (U. S. Civil Service) 473;
[Harvey] *1221; (examination for resident,
California) 655; (in Peru) 992; (for consulting psychiatrist, California) 990
practice, protecting while in service, (specialists share fees, Indianapolis) 1227
Practicing: See also Medicine, Practice
practicing, continuation courses for, 54—E:
*69; *1390
practicing, Sessions for General Practitioners
at Atlantic City session, 1500—OS

practicing, Sessions for General Practitioners at Atlantic City session, 1500—0S Prescriptions: See Prescriptions Prizes for: See Prizes

Prizes for: See Prizes
Procurement and Assignment: See Medicine
and the War
Refugee: See Physicians, foreign
Residencies for: See Residencies
Specialization by: See Specialists; Special-

Residencies for: See Residencies
Specialization by: See Specialists; Specialites
supply for emergency base hospitals, 984
supply, number in Latin America, 397
Supply, Speeding Production of: See Education, Medical, curriculum (accelerated)
Swindling: See Impostors
Testimony: See Medicolegal Abstracts at end of letter M
veteran, (Dr. Annie S. Daniel) 310; (Dr. Max Einhorn) 830; (Dr. J. H. Kellogg)
908; (Dr. G. V. I. Brown) 1232
War Service: See Medicine and the War;
World War II
who may examine couples preceding marriage,
[Forster & Shaughnessy] *794: *795
women, doctors for Britain, 538—E; 1485—OS
women, in the Air Force, England, 1508
women, should enroll with Procurement and
Assignment Service, 635
PHYSIOLOGY of muscular work, [Ivy] *569
PHYSIOTHERAPY: See Physical Therapy
PHYSOSTIGMINE, Ill effects from continuous
use for glaucoma, 679
PICROTOXIN: See Barbiturates poisoning
PICTURES: See Moving Pictures; Portraits
PIGEON, psittacosis due to, [Alicandri] *1214
PIGMENT of malaria parasite identified as
hematin, 461—E
PILES: See Hemorrholds
PILLOWS, arrangement to avoid arthritic deformittes, [Joplin & Baer] *938
arrangement to relieve pain in scalenus syndrome, [Reichert] *295
PILOCARPINE, effect on glutathione content
of blood, liver and spleen, [Izaki] 414—ab
ill effects from continued use in glaucoma,
679
PILONIDAL SINUS, [Kooistra] 1163—ab
PILOTS: See Aviation

ill effects from continued use in glaucoma, 679
PILONIDAL SINUS, [Kooistra] 1163—ab
PILOTS: See Avlation
PIMPLES: See Avne
PINK Disease: See Erythredema (acrodynia)
Eye: See Conjunctivitis
PINWORMS Infection: See Oxyurlasis
PIROGOV method for treating gunshot wounds
and fractures, [Orr] 917—C
PITRESSIN, pre- and postoperative use of,
[Wylie] 405—ab
PITTSBURGH, University of: See University
PITUITARY, Anterior Pituitary Like Substance:
See Gonadotropins. chorionic
cachexia, Simmonds' disease, or panhypopituitarism, [Fraser] 1165—ab
disturbance, asthenia and aching with gain in
weight, 679
headaches and, [Goldzieher] 486—ab
insufficiency, hypopituitarism of Lorain-Levi
type, [Ornstein] 254—ab
intraventricular drainage for cystic craniopharyngioma, [Scarff] 81—ab
lactation and, [Berblinger] 1334—ab
Posterior Extract: See also Pitressin

PITUITARY—Continued

posterior extract plus prostigmine or ergotamine to stimulate colon, [Adler] 1402—ab posterior solution, Sodeman-Engelhardt renal concentration test, 768 posterior, Solution-U.S.P. (Lakeside), 49 roentgen irradiation, [Pendergrass] 483—ab thymus relation to Houssay, 833 thyrotropic hormones, antihormones, [Joël] 176—ab

thyrotropic hormones, antihormones, [Joe1]
176—ab
tuberculoma, [Kirschbaum] 671—ab
PITYRIASIS rubra pilarls, 1526
PLACENTA: blood injection in amenorrhea.
[Halbrecht] 1015—ab
previa centralis; placenta on anterior wall,
[Falls] *206; *207
tumor, hydatidiform mole, pregnancy tests,
[Ten Seldam] 1336—ab
PLAGUE, bubonic, vector: fleas from burrowing owls, 461—E
infection in fleas, Calif., 907
pneumonic, in Kalahari, [Gale] 411—ab
vaccination against, (Circular letter No. 3)
385

PLANNED Parenthood Federation: See Birth Control PLANTS: See Chlorophyll; Pectin; Pollens;

Rhus See subheads under Blood; Blood PLASMA:

PLASMA: See subneaus under Transfusion; Serum PLASTER Splints: See Splints PLASTIC Surgery: See Surgery PLASTICS: See Resins PLAYWRIGHT: See Dramats

PLAYWRIGHT: See Dramatist
PLEDGE of allegiance, 330—SS
PLEURA cavity, sulfanliamide locally in, [Burford] 924—ab
effusion diagnostic aid in pulmonary tularemia, [Kenuedy] *781
PLEURISY, purulent: See Empyema
PLEURODYNIA in men of Royal Air Force after inoculation, [Williams] 1163—ab
PLOTZ Foundation: See Foundations
PNEUMOCOCCUS. Antipneumococcic Serum,
N. N. R. (Rabbit) Types 1, 2, 3, 4, 5, 7,
14, (Lederle) 1217
antipneumococcus serum therapy, 50—E
gramicidin and tyrocidine, [Herrell] 1401—ab
Infection: See also Pneumonia
infection, air borne, [Buchbinder] *725

infection, air borne, [Buchbinder] *725 infection, resistance to sex hormones affect [von Haam] 1002—ab

Ivoi mann 1002—ab infection, state distributes sulfadiazine for, New York, 59 role in acute otitis media and mastolditis, [Curtin] 1011—ab type X cause of epididymitis, [Heckel] 406—ab

type X cause of epididymitis, [Heekel] 406—ab
PNEUMOCONIOSIS, bronchlogenic cancer and
asbestosis, [Holleb] 1248—ab
tuberculosis relationship, [Gardner] 612—ab
PNEUMONIA: See also Bronchopneumonia
antibodies in circulating blood vs. in sputum,
[Blankenhorn] 1162—ab
Commission on, 463
complicating diabetes, sulfadiazine and sulfathiazole in, [Styron & others] *1421
diagnosis, skin reaction to specific soluble
substance (Francis test), [Meyer] 83—ab
in childhood, single large dose of sulfathiazole for, [Friderichsen] 1336—ab
in Infants, acute pleural empyema about one
month after, [Bettimotti] 673—ab
lipid, nasal inhalant preparations containing
petrolatum, (Council report) 378
lipid, oily solutions for intratracheal injections, 680
mortality, (Pennsylvania) [Stable] *440;

mortality, (Pennsylvania) [Stable] *440; (Mexico) 476 pneumococcic, sodium sulfadiazine for, [Domm] 1250-ab

sputum ("rusty"), therapy based on, [Frisch] 1006—ab; 1162—ab

sulfathlazole for, [Michael] *869 transmission, air-borne, [Buchbinder] *725 treatment, antiserum, mechanism, 50—E treatment, antiserum (rabbit), N. N. R., (Led-erle) 1217

treatment, antiserum (rabbit), N. N. R., (Lederle) 1217

treatment, sulfadlazine, [Long] 170—ab
treatment, sulfapyridine and sulfathiazole,
[Kelley] 1519—ab
treatment, sulfapyridine, sulfathiazole, with
and without serum, [Stable] *410
treatment, sulfathiazole reactions after readministration, [Lyons & Balberor] *955
treatment, sulfonamides, empyema thoracis
after, [Burford & Blades] *950
tularemic, [Kennedy] *781
virus, [Moss] 1112—ab
PNEUMONOLYSIS: See Tuberculosis, Pulmonary, surgical treatment
PNEUMOPERITONEUM, inducing, alds Irradiation for uterus cancer, [Sante] 483—ab
spontaneous, [Rigler] 325—ab
PNEUMOTHORAX, chronic, poudrage in, [Myers] 1324—ab
spontaneous, Idiopathic treatment, [Brunner]
1016—ab

PNEUMOTHORAX, ARTIFICIAL See Tuberculosis Pulmonary, artificial pneumothorax
PODOPHYLLUM resin, dermatitis from Carters
Liver Pilis, [Conroy] *1449
resin in liquid petrolitum for condyloma
acuminatum [Kaplan] 1518—ab
POIKILODERMA 'strophicans vasculare Jacobi's,
after arsphenamine dermatitis, [Cannon &
others] *122, [Shelton] 664—C
POISONING See Rhus
POISONING See also under names of specific
substances Medicolegal Abstracts at end
of letter M

substances Medicolegal Abstracts at end of letter M immediate treatment of American Red Cross method, 568
Industrial See Industrial Dermatoses, In-

American Red Cross

Industrial See Industrial Dermatoses, Industrial Disease

POLAR bear liver, toxicity of, 337, (reply)

[Sutton] 1026

POLICE See also Traffic officers

officers, audiograms of [Bunch] *592

POLIOENCEPHALITIS, hemorrhagic pyruvic

acid in Wernicke syndrome, [Wortis] 1407

—ab

-ab
POLIOMIELITIS, acute anterior, origin chickens and turkers, [Preioni] 400-ab acute, spinal fluid proteins in, 1025 center for, Alabama, 1503 diagnostic problem of reute infectious polyneuritis [De Sanctis & Green] *1445 etiology, Lansing strain of virus [Peers] 485

in Sultzerland 662

muscles in, microscopic changes [Hipps] 1409-ab

National Foundation for Infantile Paralysis. found aids soldiers and sallors children, 472, (grants for research) 549, (annual report) 659 (Bulletin on activities) 331 natural history [Sabin] 1009—ab 1164—ab tonsillectomy and, 980—E [Seydell] 1330

transmission through 4 families, [Perkins] 256--ab

256—ab treatment, Kenny method (correction) 241, (given in Osler's Practice of Medicine) (Given in Osler's Practice of Medicine) (Haas] 399—C, [Compere] 918—C (courses in, given at U of Minnesota) 1310 1379, [Bolines] 1408—ab [Pohil] *1428, [Duly & others] *1493 1454—E treatment, respirator designed by Mr Reynolds, 535 538—E treatment, ritamin E and alpha tocopherol, [DeJong] 484—ab rirus centrifugal spread and elimination of, [Sabin] 1009—ab, 1164—ab virus citology [Dingle] 1331—ab virus in patients and contacts, [Kessel] 1009—ab prins transmission by mosquitoes, [Milzer]

virus transmission by mosquitoes, [Milzer] 1162--ab

waiver of physical defects for limited service officers, 1146

officers, 1140
POLISH Medical School, Students, Professors
See World War II European Front
POLITICS welfare employees must refrain from,

physicians who became distinguished politic

physicians who became distinguished politic fans, 1508

POLLENS See also Hay Fever in Brazil 94
in Netherland East Indies, particularly Java, [Ter Heege] 258—vb

POLYBACTERIOPHAGE See Bacteriophage POLYCLINIC Medical School and Hospital, physicians honored by, 1232

POLYCYTHEMIA treatment, renesection, [Holbrook] 174—ab

rera tovic effect of sulfanilamide, [Green wald & others] *975

POLYAEURITIS See Neuritis
POLYTOSIS hereditary diffuse of colon, roent gen therapy, [Vanzant] *875

POPULATION See also Census, Vital Statistics

tics conditions in Japan 546—OS congress of problems of, first in Buenos Aires,

662
problem (British) 474, (Mexico) 476
PORL See Trichinosis
PORPHIRIA acute [Aesbitt] 1005—ab
hematoporphyrinuria caused by st
[Lannel 326—ab
problemsysta in lead poisoning, [Karl sunlight,

porphyrinuria in lead polsoning, [Kark] 1254

PORTRAITS See also under names of indi-viduals as Barr, Cullen DeLee, Dukes, Haussling, Hunner Smyth, etc of first physicians killed in action on Pacific Front, 478, 1157 photographs of past presidents of county society, Dayton 471 PORTLGUESE language for Brazilian press, 831

language, study of, by physicians, [Stice]

See Education, Med-

POSTGRADUATE Work See Educational graduate Fellowships
POSTMORTEM See Autopsies
POSTOPERATILE See Surgery
Shock See Shock, surgical
POSTURF See Blood Pressure, low

POTASSILM arsenite (Fowler's solution) for tropical ulcer, [de Castro] 176—ab lodide Treatment See Blistomycosis nitrate and sevual potency, 858
POTT'S Disease See Spine tuberculosis POUDRAGE in chronic pneumothorax and cystic lung disease, [Myers] 1824—ab POULTRY See Chicken, Eggs, Turkeys POVERTY See Medically Indigent, Physicians, indigent

indigent

POWDER See under Cosmetics, Rubber Gloves

PRACTITIONER See Physicians, practicing
Illegal See under names of specific indiyiduals

PREGNANCI

riduals
REGNANCI See also Fetus, Labor, Unternit), Obstetrics, Placenta, etc
after nephrectomy for renal tuberculosis
[Scherer] 673—ab
birth control clinic attendance effect on, [Stix]
*283 [Beebe & Overton] *1048
Blood Serum from Pregnant Mares See
Gonadotropins

chances for, after long period of amenorrhen, 1026

complications, fatty liver degeneration dex-trose and transfusion for, recovery, [Whit-acre & Fang] *1358 detrimental effect on Moniere's disease? 182

diagnosis Friedman's test (Hofmann modifica-tion) 181 diet in [Jollifie & others] *950 diet in effect on child [Ebbs] 255—ab 1251

~าช

ectopic and endometritis [Schiller] 843—ab fetus still in uterus after bleeding and cer-vical dilatation, pregnancy be continued? 681

from coitus during menstruation, 419 from coitus during menstruation, 419
generalized rash late in and premature delivery use of vitamin E 94
Interruption of See Abortion
leg cramps in 1026
Multiple See Twins, Quintuplets
philebitis after former labor occur again?

1264

1264
rate formula for determining vs contracep
tives and exposures, [Beebe & Overton] *1048
syphilis test during state laws on 1479-0S
syphilis treatment of mother with negative
test but plus in father 1422
tovemia of, in relation to vascular damage
[Peckham] 79-1b
tovemia of renal blood flow in, [Dill] 1326

Urine See also Gonndotropins, chorionic urine extracts effect on peptic ulcer, [Sand welss] 168—16

uterus contractions late in [Vurphy] 409—ab uterus fibroids with, [Thompson] 87—ab vomiting of, magnesium sulfate in [Nolting] 1258—ab

1258—ab
PREGNENIAOLO\E after hysterectomy and
castration [Wenner] 176—ab
orally in amenorrhea, [Zondek] *705
PREVATURITY See Infants premature
Lubor, premature
PREPAREDAESS, Wedical See Wedicine and

Labor, premature
PREPAREDNESS, Medical See Medicine and the War
PREPAY WENT Plan See Hospitals, expense insurance Medical Service plans
PRESCRIPTIONS See also Medicolegal Ab stracts at end of letter M blanks, chart converting grains into Gm or Cc, [Anderson] 999—C wartime prescribing, 551
PRESERYATIVE See also Blood conservation Council decision, 617
PRESS See Newspapers
PRESSURE body swellings precipitated by pres sure around menstrual period, 262 cooker, use for sterilizing 770 high, effect on erythrocyte count and hemo globin [Okuda] 258—ab
PRINCESS Pat Cosmetics 247—BI
PRINTER encephalopathia saturnina in [San tillan] 85—ab
PRIORITIES Industrial See under Medicine and the War
PRISONERS of war, (International Red Cross conference on) 911, (Dr Williams) 1152
(Dr Hahn) 1309, (repatriation, Germany) 1507
PRIVILEGED Communications See Medicolegal

(Dr Kahn) 1309, (repatriation, German))
1507
PRIVILEGED Communications See Medicolegal
Abstracts at end of letter M
PRIZE FIGHTERS thickness of skull of Negroes
and whites 837
PRIZES See also Fellowships, Lectures,
Scholarships
Academia Nacional de Medicina 659
All America Package contest award to Sharp
& Dolme 1232
American Association of Obstetricians Gyne
cologists and Abdominal Surgeons 60
A M A Distinguished Service Medal, (nominations open) 1300-E
American Pharmaceutical Manufacturer's
Association 50
American Psychiatric Association, contest for
emblem 932
Amerongen, 63
Birth Control Federation distinguished service citation 1152
Capps 1150, 1379

PRIZES—Continued
Chandler Medal 60
Coples Medal, 659
Davy Medal 659
Pischer Awards, 1503
Hillebrand Award, 1230
Hijocia contest 1229—08
Ives, 155
Jeffries 550
Lilly, 310, (correction), 473, (in blochem istry) 1307
McLean, 334—SS
Mead Johnson "B Compley Award 113, 1506
Medical Society of the District of Columbia

PRIZES-Continued

Medical Society of the District of Columbia

Medical Society of the District of Columbia 1378

Mississippi Valley Medical Society 659
Autional Safety Council contest winners 1596
Aebraska contest on biography of pioneer physician 991
Aichols Medal 240
Osborne Vedul 547
Osler (William) Medal 1506
Raddiological Society of North America 657
Royal Society of I ondon, 659
St Louis Medical Society Award 1504
Selbert Award 1151
Smith (Theobald) Medal 465
Snow (William Freeman) Award 1305
de Souza (Oscar), 910
Town Hall, 1231
Wellcome Medal competition open 1305
PROCAINE HYDROCHLORIDE nomenclature of salts of basic substances Aovocain (Council decision) 617
PROCTITIS See Rectum inflammation
PROCTOLOGISTS National Proctologic Certification Committee organized 472
PROCUREMENT and Assignment Service See Medicine and the War
PROFESSIONS See also Dentistry, Medicine, profession of Students and instructors See Medicine and the War deferment Institute for Women's Professional Relations 1378
Interprofessional Conference organized Wash

1378
Interprofessional Conference organized Wash ington, D C, 990
interprofessional meeting on war activities, 744
Professional Lalson Committee 547
Professional Women, National Federation of, promote health evaninations, 382—F
PROFESSORSHIPS visiting at Long Island
1151

PROGESTERONE See also Pregneninolone Council decision 617 effect on natural resistance to infection from Haam] 1002—ab

treatment generalized rash late in pregnancy, treatment of amenorrhea, [Zondek] *70, treatment of amenorrhea in diabetic not con traindicated 1170

treatment of threatened abortion [Kotz] 172

treatment of threatened abortion [Kotz] 172

-ab

US P All Committee on Revision vs Council's views on 1216

PROLACTIN hypophysis and lactation [Berblinger] 1334—ab

PROLAN A, in testicular tumors [Twombiy & others] *106

PRONUNCIATION of 'amide' 'sulfanilanide and 'sulfathiazole'' (Council report) 378

PROPIL ALCOHOL (Isoprophyl) and accione for disinfecting instruments 94

PROPILENE GLYCOL to prevent air borne in fection [Buchbinder] *728, *729 734—E sulfathiazole spray use in nose of throat [Youkman & others] 1317—C, (correction] 1507

PROSTATE cancer vs acid phosphatase of blood serum and castration 8.5, [Ajamil] 1166—2b cancer occult adenocarcinoma incidence cancer occult adenocarcinoma incidence (Baron) 2:3-ab (reply) [Smith] 1514-C

cancer surgery for \$55, {repty} [Smith]

1514—C

hypertrophy nostrum Purviance Sanitarium
399—BI

Resection See also Prostatectomy
resection anaphylactic reaction after elec
troresection [Armhold] 178—ab
tumor, leiomyosarcoma [Prince] 1010—ab
PROSTATECTOMY rejection for military service 1147

PROSTIGNIVE methyluitate effect on fitriliton and tremor [de Jong & Simons] *701
methylsuifate intra-nitrially, (frect on my
asthenia gravis [Harves] 1007—ab
ocular symptoms in myrsthenia gravis, [Mat
tis] 671—ab
pituitary or ergotamine combined to stirue
late colon [Adder] 1402—ab
treatment of heariturn [Williams] 403—sh
PROSTITUTION See Medicine and the Mar
reperced discase
PROTAMYN. Zine Insulin See Insulin

PROTECTIVE oreans used in industry, [Lare & others] *615

PROTEIN See also Milk protein
Deproteinated Pancreas tissue extract

Proteins **Company of the protein of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancreas of the pancre

Pancreas diet (high) and liver cirrheds 573 diet (high) and liver cirrheds 573 liver orally for hypoproteine-la [Pel ling] 169-ab

PROTEIN-Continued in Blood: See Blood
in Cerebrospinal Fluid: See Cerebrospinal in Cere

in Urine: See Albuminuria

m orine: See Albuminura
syntheses by bacteria in Intestine, 1219—E
PROTEUS vulgaris as gas producer in diabetes,
[Leder] 664—C
PROTHROMBIN: See Blood coagulation
PRURITUS vulvae, estrogens in, [Arenas] 1417
—ab

—ab —ab PSEUDOEPITHELIOMA hyperplasia in multiple pyoderma, [Mercer & Obermayer] *139; [Mezey] 664—C PSITTACOSIS due to pigeon, [Alicandri] *1214 PSORIASIS, chronic, crude coal tar ointment in soft petrolatum for [Bigham] 926—ab nostrum: Der-Mo-Topic Laboratories, 318—BI

pustular bacterids, [Andrews] 754—ab sensitivity to human dander, [Hampton] 486

PSYCHIATRIST, consulting, examination for,

PSYCHIATRIST, consulting, examination for, Calif., 990
PSYCHIATRY: See also Neuropsychiatry; Orthopsychiatry
American Psychiatric Association, (graduate education) \$31; (contest for design of emblem) 992; (standards set for hospitals) [Overholser] *1029; (meeting) 1506 child, New York Society for, 744 clinic at Guy's Hospital, 832 course in, at George Washington U., 655 development of, [Overholser] *1028 Gregory (Menas S.) fund for, 1308 Illinois Psychiatric Research Council, 743 Menninger Clinic (Topeka) changes training

Illinois Psychiatric Research Council, 743
Menninger Clinic (Topeka) changes training program, 908
Swiss Society for, 661
PSYCHOANALYSIS, Association for Advancement of, (bulletin on morale) 624—E: (meeting) 1381; (statement regarding) 1507
in alcoholism without psychosis, [Norbury] *25
New York Psychoanalytic Society and Institute, statement by, 1507
PSYCHOLOGY, Laboratory at Columbia U., 50th year, 1151
mass, which menaces the world: Trotter's theory, 62

theory, 62 of aged, 661 PSYCHOSIS: See also Mental Disorders
Postpartum: See Insanity, puerperal
senile and arteriosclerotic, [Rothschild] 1248

PSYCHOSOMATIC MEDICINE, nothing physically the matter; psychotherapy, [Miller & Frey] 319—C
PUBERTY: See Adolescence; Menstruation, in-

ception of PUBLIC Health: See Health

Lands, civil rights of persons in military service, 307
Lecture: See Lectures relations post, state board creates, Ind., 238
Schools: See Schools

welfare employees must refrain from politics,

welfare, Illinois Welfare Association new name, 1378 PUERPERAL INFECTION, thrombophlebitis

and pulmonary embolism, 1339 PUERPERIUM, Insanity in: Se See Insanity, puerperal

sagittal sinus thrombosis after, [Martin] 410

tetanus in, from inefficient steam sterilization of cotton, 242

PULMONARY Embolism: See Embolism

is, Pulmonary

ondary throm-

bocytopenic, from sulfapyridine, [Goldbloom] 486—ab thrombopenic, from gulinine, [Bais] 852—ab thrombopenic from sulfathiazole, [Rosenfeld & Feldman] *974 treatment, splenectomy in, [Pernokis] *865 PURVIANCE Sanitarium, 399—BI PUS: See Abscess; Infection, pyogenic; Pyoderma; Suppuration (cross reference) PUSTULES, bacterids, [Andrews] 754—ab PYELONEPHRITIS and hypertension, [Kimmel] 1247—ab

nell 1247—ab etiology obstructing ureteral lesions, [Mcdonald & Ballenger] 998—C; (reply) [Murphy] ply] 998—C

Phys 938—C in diabetes, sulfadiazine and sulfathiazole for, [Styron & others] *1424 necrotizing, in diabetes, [Harrison & Bailey] *15

Obstructive form, [Bell] 1414—ab treatment, sulfanilamide, [Martins Costa] 929—ab

929—ab
treatment, sulfathiazole, febrile reactions
[Lyons & Balberor] *956
unliateral, juvenile hypertension in, [Powers
& Murray] *\$600; (discussion) 608
PYKNOLEPSY, [Owen] 923—ab
PYODERMA, multiple, pseudoepitheliomatous
hyperplasia, [Mercer & Obermayer] *139;
[Mezey] 664—C
treatment, sulfathiazole, [Robinson] 408—ab

PYONEPHROSIS, calculous, pyoureter 17 years after nephrectomy [Davison] *137
PYORRHEA, nostrum, Cable Products and Oralene, Inc., \$837—BI nostrum: Hyral, 246—BI PYOURETER: See Ureters
PYRIDOXINE hydrochloride, N. N. R., 140 treatment of paralysis agitans, [Meller] 1164—ab

-ab

PYRO, Cable Products and Oralene, Inc., 837 PYRUVATE in Blood: See Blood

Q
QUADRIPLEGIA: See Tetraplegia
QUAKERS provided Burma Road in China with
medical service, 542
QUARANTINE period urged for animals shipped
from encephalitis areas, [Hammon] 66—C
QUARTERLY CUMULATIVE INDEX MEDICUS: See
American Medical Association
QUESTIONNAIRE for Enrolment of Physicians:
See Medicine and the War, enrolment;
Physicians, census
QUINIDINE Treatment: See Tachycardia,
paroxysmal
QUININE, sale regulated, Argentina, 397
conservation order (M-131), 1455
thrombopenic purpura caused by, [Bais] 852

—ab QUINTUPLETS, Lyon, mother of, dles, 391

RABBIT Fever: See Tularemia peritoneum, use in lime burns of eye, [Brown] 169—ab Serum: S

Serum: See Pneumococcus thrombin as local hemostatic, [Lozner] 79

thrombin as local hemostatic, [Lozner] 79
—ab
RACE: See also Chinese; Indians; Japanese;
Jews; Negroes; etc.
tuberculosis in racial groups in Southwest,
[Dublin] 1328—ab
RADCLIFFE College: health center, 239
RADIATION: See also Cyclotron; Diathermy;
Radium; Roentigen Rays; Ultraviolet Rays
Treatment: See also Breast cancer; Testis
tumps tumors

tumors
treatment, danger in agnogenic myeloid metaplasia of spicen, [Reich & Rumsey] *1200
RADIO, America's Town Meeting of the Air,
Dr. Goldwater's address, 468—OS
interference caused by diathermy, (Australia)
477; (Council report) 1468—OS
Medical Round Table of the Air, Wash., 1381
National Defense Health Clinics broadcast,
time changed, 241
Program by A. M. A.: See American Medical
Association
records of heart sounds using radio-phonograph, [Geckeler] 399—C
talks on morale by New York Academy, 900
—E

RADIOACTIVE Phosphorus: See Phosphorus substances hazard to young workers, 1373—E RADIOLOGY, American College of, 746
Conference (eastern) on, 471

in hospitals, requirements, 1498—OS Minnesota Radiological Society, 1231 Radiological Society of North America medal,

657
RADIOTHERAPY: See Lymphosarcoma; Uterus

cancer
RADIUM, air raid precautions; radium buried
underground, England, 242; 396
dial painting, hazard in young workers, 1373

Treatment: See Cancer; Lips, tumors; Radio-therapy (cross reference); Uterus cancer;

etc.
RAILROAD industry, disease incidence in, Railroad Retirement Board investigation, 1477
-OS

-OS
London's underground, as refuge from air
raids, 1235
RAMON'S Formula: See Vaccine
RAMÓN Y CAJAL, S., memorial, 834
RANKIN, FRED, ordered to active duty, 307
RASH: See Eruptions
RAT-BITE FEVER in Washington, D. C., [Lar-scal] 86-ab

RAT-BITE FEVER in Washington, D. C., [Larson] 86-ab
RAT-BONE, JOSEPHINE, 10 tricks on how to relax by, 537-E
RATHENEY, FRANCIS, death, 553
RATHKE'S Pouch: See Craniobuccal Pouch
RATIONING: See Food: Paper; Rubber
RATIONING: See Food: Paper; Rubber
RATONING: See Food: Paper; Rubber
RATONING: See Food: Paper; Rubber
RAYNAUD'S DISEASE, spontaneous cold hemagglutination in, [Benians] 459-ab
sympathectomy in, [Harris] 922-ab
RAYON workers, chronic carbon disulfide absorption in, [Lewey] 484-ab
RAYS: See Radiation
RECKLINGHAUSEN'S Disease: See Neurofibromatosis
RECORD: See Case record; Heart sounds;
Narcotics

RECORD: See Case record; Heart sounds; Narcotics Librarians: See Medical Record Librarians RECREATION: See Physicians, avocations Centers for Soldiers, etc.: See Medicine and the War RECRUITS: See Medicine and the War

RECTUM: See also Anus; Hemorrholds; Proc-

tologists
cancer, earlier diagnosis, [Braund] 1012—ab
cancer, radical resection; also Miller-Abbott
tube in, [Leigh & Diefendorf] *212; *213
inflammation due to venereal lymphogranuloma, sulfaguanidine for, [Canizares] 81
—ab; (also sulfanilamide) [Palmer &
others] *517
Support Veneral Additional Control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contro

others] *517
surgery, urinary retention after, furmethide
for, [Linton] 1517—ab
RECUPERATION: See also Rest
after working; rest periods needed (including Sunday), [Ivy] *571
use of ergogenics, [Hellebrandt] 409—ab
RECURRENT Fever: See Relapsing Fever
RED Light (doen) better then blue in blackouts

RED light (deep) better than blue in blackouts, 541

541
RED CROSS: See also Red Cross, American British, medical aid to Russia, 747
International, conference on treatment of war prisoners, 911
RED CROSS, AMERICAN, aid to Britain, 1154 appeals for funds—first aid instructors, 145 blood donor enrolment; use of dried, liquid or frozen plasma, [Newhouser] 1252—ab
Blood Donor Service, physicians wanted for, 639

blood donors, 1,000,000 required, 1303 blood plasma preservation with sulfonamide, [Heath & Province] *1034 blood plasma procuring program Illinois 987

blood procurement program, physicians needed for, 231

for, 231
disaster relief squadrons, 1376
FIRST AID HANDBOOK, 905
first aid treatment of poisoning, 568
health service director, Dr. Amos Christie, 658
mobile units, 1458
nurses in civilian defense, work of, 986
nurses, one week institutes for, Mich. 1305
rest centers; rehousing; community feeding,
cooperation with X. Y. welfare dept., 737
service clubs for Australia, 1204

cooperation with N. Y. weitare dept., 151
service clubs for Australia, 1204
RE-DUCE-OIDS, 247—BI
REDUCING: See Obesity, treatment
REED'S Cut Kate Drug Store, 318—BI
REFLEX, Carotid Sinus: See Carotid Sinus
tendon, brachial neuritis in epidemic form,
[Wyburn-Mason] 1165—ab
vasovagal or vagovagal syncope, [Welss]
*532

as Cancer; etc.
Committee for Protection of, Bureau report,
1474-08

Council for Scientific and Industrial Research,

Council for Scientific and Industrial Research,
Australia, 477
Council on Problems of Alcohol, studies under way, 1152
deferment and, 634
Fellowships: See Fellowships
grants, available by A.M.A., 910; 992; 1468
—OS; 1489—OS; 1491—OS
grants by W. R. Warner & Co., Inc., 1232
Laboratories: See Laboratories
National Research Council: See National
Research Council: See National
Research Council: See National
Research Council: Trizes
Study Club of Los Angeles, 743
Therapeutic Research Corporation of Great
Britain Limited, 303—E: 748
RESIDENCIES approved by A.M.A., *1067;
*1069; *1070; 1149—OS
RESINS: See also Nylon; Vinyon
methyl methacrylate, toxicity of Lucitone and
Vernomite, 1169
use in rebuilding houses, 1354
RESORCINOL spray to control air borne infection, [Buchbinder] *728
RESPIRATION, Artificial: See also Respirators
artificial, in advanced asphyxia, [Birnbaum
& others] *1364
artificial, in 20 minute cardiac arrest during
operation, [Adams] *133

RESPIRATION-Continued artificial, research by A.M.A. Council, 1468

-08
does the skin breathe? Death of woman covered with gold paint, 568
RESPIRATORS, American Respirator, 978
simple workable, designed by Mr. M. K. Reynolds, 535; 538—E
RESPIRATORY Metabolism: See Metabolism,

basal
RESPIRATORY SYSTEM: See also Bronchus;
Lungs; Pleura; Trachea
Disease: See Bronchiectasis; Lungs, disease;
Pneumoconiosis
College; See also Colds; Influenza; Pneumoconiosis

Pneumoconiosis
Infections: See also Colds; Influenza; Pneumonia; Tuberculosis, Pulmonary
infections (cross), technic of control at The
Cradle, [Sauer & others] *1271
infections (postoperative) vs. anesthesia,
[Lyford] 1007—ab
infections, propylene glycol sulfathiazole spray
to prevent, [Yonkman & others], 1317—C
(correction) 1507
infections, sulfonamides for, [Menefee], 488 infections, sulfonamides for, [Menefee], 488

—ab
infections, transmission, especially air borne,
[Buchbinder] *718
REST: See also Recuperation
centers organized by Red Cross and New
York City welfare dept., 737
RESUSCITATION: See also Respiration, artificial; Respirators
in advanced asphyxia; methods compared,
[Birnbaum & others] *1364
RETICULOGEN treatment of pernicious anemia,
1025

1025
RETINA, detachment, bee sting to upper lid

RETINA, detachment, bee sting to upper lid produce? 682
REVIGATOR Products, 163—BI
REVISTA: See Journals
REVNOLDS, M. K., designed simple workable respirator, 535; 538—E
RG-20, synthetic estrogen, clinical use, [Gordon] 1002—ab; 1003—ab
RH factor in fetal crythroblastosis, 143—E; [Levine] 843—ab
RHEUMATIC FEVER, antistreptolysin 0 titer in boys, [Green] 175—ab
arm and leg pains in boy, 261
Cardiac Complications: See Heart disease, rheumatic
in childhood: type of onset vs. calendar year, [Ash] 167—ab
lecture on, N. Y., 1151
reportable disease, Arkansas, 828
research grant to Irvington House by Borden Co., 392
RHEUMATISM: See also Arthritis

Co., 392

RHEUMATISM: See also Arthritis
Acute Articular: See Rheumatic fever
"allergic" and "allergizing," [Kahlmeter] 258

Argentine association, 834
Desert: See Coccidioidosis
Empire Rheumatism Council (5th annual report) 1508

port) 1306 in military service, [Heinemann] 1522—ab nostrum, Ru-Ex, 247—Bl palindromic, [Hench] 1013—ab; 1323—ab weather, climate and, role of dampness and

chilling, 507
RHEUMATOID ARTHRITIS: See Arthritis,
rheumatoid

rheumatoid
RHINITIS, acute, effect of household humidity
on susceptibility to, 936
altergic, short wave therapy, [Brighton &
others] *507
Vasomotor: See Hay Fever
RHODE ISLAND Society of Pathologists organized, 1152

RHODE ISLAND Society of Pathologists organ-ized, 1152
RHUS, poison ivy oleoresin tablet orally as preventive, [Gold] 1409—ab poison ivy, preventive ingestion of leaf or root oleoresin, [Shelmire] 669—ab RIBOFLAVIN deficiency, [Jolliffe & others]

oleoresin, [Shelmire] 669—ab
RIBOFLAVIN deficiency, [Jolliffe & others]

*949
N. N. R., Mead's Tablets, 141
requirement for enriched flour postponed, 241
RIBOSE, chromosome chemistry, 802—ab
RIBS, cervical, compression of brachial plexus,
[Reichert] *294
fractures (uncomplicated), local anesthetic
for, [Harmon & others] *30
RICE wine (Saké), liver cirrhosis from, [Nakahara] 564—ab
RICHMOND, nutrition experiments in, 1152
RICKETS, blood plasma phosphatase in, [Josefsson] 673—ab
diagnosis, ossification centers in, [Schwarzenberg] 1166—ab
prevalence; cause of death in U. S. [Jolliffe & others] *945; *948
Renal: See Dwarfism, renal
RICKETTSIA: See also Rocky Mountain Spotted
Fever; Typhus
culture in duck cggs, [Gispen] 414—ab
RINGENTSIA: See also Rocky Mountain Spotted
Fever; Typhus
culture in duck cggs, [Gispen] 414—ab
(W/Y) in, N. N. R., (Baxter) 227; (Hospital Liquids) 1216; (Merrell) 1217
in vacoliter container, N. N. R., (Baxter) 141
lactate, N. N. R. description, 226
RINGWORM: See Dermatophytosis; Tinea
of Feet (athlete's foot): See Epidermophytosis interdigitale
RIVETER, audiogram showing loss of hearing,
[Bunch] *590

ROBERTS, STEWART R., memorial to, 1378 ROCKEFELLER Foundation: See Foundation ROCKY MOUNTAIN SPOTTED FEVER, Brazil typhus identical with, 159 virus of low virulence, [Topping] 174—ab RODENTS: See Mice (cross reference); Rab-bite: Rate

bits; Rats

bits; Hats

RÖMER reaction, subminimal reactive dose, S56

ROENTGEN RAYS, bronchocinematography,
662; [Castex] 1258—ab

compared with diathermy in periarthritis of
shoulder, [Solomon] 405—ab

Dlagnosis: See Liver cancer: Lungs, cancer;
Roentgenography; Tuberculosis
films (14 by 17 inches) of chest, [Richards]
1327—ab

132:--a0 fluorograph screening for civilian tuberculosis, [Douglas] 484--ab fluoroscopy in pulmonary tuberculosis, [Gar-land] 1328--ab Irradiation: See also Pituítary; Roenigeno-therance

Irradiation: See also Francis, Acceptanterapy irradiation of chest, lung fibrosis after, [Widmann] 1327—ab irradiation sickness, [Steinberg] 1327—ab technicians, number in all hospitals, *1065 ROENTGENOGRAPHY: See also Bronchography; Urography; Venography (cross reference)

[Mercer] 407—ab spot; roentgenoscopy of lungs, [Stiehm] 1328

ROENTGENOLOGY of head and neck, course

ROENTGENOUGG in 1150
ROENTGENOTHERAPY: See also Acne vulgaris: Bacteria welchii infection; Bladder, ulcer: Bronchiectasis; Colon, polyposis; Gangrene, gas; Spine arthritis; Sweat

high voltage, of accessible cancer, [Sims]

Glangene, gas; Spine arthritis; Sweat Glands high voltage, of accessible cancer, [Sims] 1014—ab of localized hyperhidrosis safe? 682 ROSE Dorf's Cosmeties: See Dorf's ROSE Dorf's Cosmeties: See Dorf's ROSE MARY SWARTZ Lecture: See Lectures ROTHMUND Syndrome: See Werner's Syndrome ROTTER'S intradermal test to determine vitamin C, [Dollé] S50—ab ROYAL: See also England College of Surgeons, Museum of, (destruction) 158; 312; (to form new pathologic war collection) 747 Medical Benevolent Fund, 552 Society of London (awards in science) 659; (Dale's presidential address) 747 Society of Medicine, otolaryngologist in the war 1154 Society of Medicine, otolaryngologist in the war 1154 Society of Sciences of Uppsala, elect Dr. Evarts A. Graham, 59 RUBBER drug sundries, price of, 1227 Atex Rubber Company, 837—B1 gloves, miliary granulomatous lesions from powder used on, [Byron] 409—ab made available to supply medical needs, 905; 1475—OS RU-EX, 247—B1 RUIZ CASTANEDA, M., technic of Well-Felix agglutinating test, [Thalhimer & Myron] *371 (footnote 3) RUPTURE: See Hernia; Intestines; Mesentery; Uterus; etc. RURAL Community: See also Farm community vs urban registrants for Selective Service, per cent rejected, [Rowntree] *1225 RUSSIA, Anglo-Soviet medical relations, 552 medical aid for, 541; 747; 913; (also stoves) 987 Soviet doctors use American methods, 1382

Soviet doctors use American methods, 1382 RUSSIAN War Relief, Inc., 987

SACROLUMBAR lesion, Salmonella schottmülleri isolated from, [Ecker & others] *1296
"SAFE PERIOD": See Birth Control
SAFETY, American Museum of, contest, 549
Council, physician members of, Calif., 828
National Safety Council contest winners, 1506
SALORS: See also Navy
Civil Relief Act of 1940, 306
ST. JOHN, Valentine, fugitive abortionist located, 909
ST. LOUIS Type: See Encephalitis, Epidemic SAKÉ, Japanese, liver cirrhosis from, [Nakahara] 564—ab
SALESMEN, fraudulent: See Impostors
SALICYLATES: See Acid, salicylic; Mercury, mercuric salicylate
SALINE Solution: See Sodium chloride solution.

SALINE Solution: See Sodium chloride solution
SALMONELLA schottmülleri Isolated from sacrolumbar lesion, [Ecker & others] *1296
sulpestifer infection, [Goulder] 1517—ab
typhi murium, acute diarrhea outbreak due
to, [Mosher] 1013—ab
SALT: See also Sodium chloride
iodized, Hardy's Stabilized, 819
SALTS of basic substances, nomenclature of,
(Council decision) 617
SALYRGAN-theophylline tablet for edema,
[Borg] 1404—ab
treatment of hepatorenal syndrome, [Nonnenbruch] 850—ab
SAN FRANCISCO County Medical Society committee to study industrial problems, 743

SAN JOAQUIN Valley Fever: See Coccidioido-

SANITARY Tampons: See Menstruation, tam-

SANITARY Tampons: See Mensuruation, tampons
SANITATION: See also Health; Hygiene of eating utensils, 981—E
SARCOMA: See also various types of sarcoma as Leiomyosarcoma; Lymphosarcoma; under organ or region affected idiopathic hemorrhagic, [Jacobsen] 930—ab
SAVINGS, Defense Savings Program: See Defense

fense SCABIES,

fense

SCABIES, treatment, benzyl benzoate-spiritus saponis Hebrae mixture, [Lutz] 1016—ab

SCALDS: See Burns

SCALENUS Antieus Syndrome: See Muscles

SCALES, metric vs. English measurements, [Anderson] 999—C

SCALP: See also Alopecia; Hair ringworm, estrogen for, [Yanez] 1250—ab; [Poth] 1330—ab

SCAPULA: See also Shoulder winged, brace for, [Wolf] 171—ab

SCAR: See Cleatrix

SCARLET FEVER, immunity after: second attacks, [Freudenberg] 1335—ab immunization; [Toomey] 1005—ab immunization; methods evaluated, [Graham] 1519—ab

1519-ah immunization of Canadian air force, [Sellers]

170-nh

in Germany, 1931 vs. 1941, 1383
outbreak, Philadelphia, 910; 1151; (Immunization program) 1309
treatment, plasma, [Strumia & McGraw] *429
SCHERING Corporation officials suspended, 472
SCHILDER'S Disease: See Encephalitis
SCHILLER'S Test: See Uterus cancer
SCHIZOPHRENIA: See Dementia Precox
SCHMIDTBERGER, SAMUEL, sentenced, 829
SCHNEPEL, Carl G., and Magle Oli Company,
1513

SCHMIDTERREER, SAMDER, SCHERREN, 62
SCHNEPEL, Carl G., and Magle Oil Company, 1513
SCHOLARSHIP in medicine [Christian] *157
SCHOLARSHIPS: See also Fellowships competitive, [Munro] *1031
Donnelley fund at Yale, 334—SS for South Americans, [Stice] *236
Harvard, renewed, 1022—SS
SCHOOLS: See also Children, school; Education; Students; University
American Association of School Administrators
Yearbook, 1473—OS
for Technicians: See Laboratories; Occupational Therapy; Physical Therapy health education conference, 990
lunches, effects of various types, 53
Medical Bureau for New York City Board of Education reorganized, 471
physical education program for, 745
tuberculosis case finding in, R. I., [Shields] 404—ab
ultraviolet lamps for disinfection of air in school 100ms, (Council report), 298
ultraviolet sterilization of air to control cplemics in, [Wells] 1326—ab
SCHOOLS, MEDICAL: See also Education.
Medical; Students, Medical; University; under names of specific schools
Accelerated Program (12 month basis): See Education of American Medical Colleges, 733—E
Association of American Medical Colleges and A.M.A. Council confer, 966—OS; 1149—OS

735—E
Association of American Medical Colleges and
A.M.A. Council confer, 996—OS; 1149—OS
Continuation Courses: See Education, Medical, graduate
graduate school for tuberculosis, Chicago,

history of, in U. S., [Norwood] 759—SS industrial hygiene courses, [Seeger]. *1017 industrial medicine in relation to, [various authors] 646—ab National Defense and: See Medicine and the War, medical schools of Aviation Medicine: See Aviation of Tropical Medicine: See University of Puerto Rico de SCHWEINITZ Memorial Fund, [Purves] 1158—C: 1380

SCHWEPPE Fund: See Northwestern Univer-

SCHWEPPE Fund: See Northwestern Unitersity
SCIENCE: See Journals
SCIENCE: See also Research
American Association for Advancement of,
Thousand Dollar Prize, 831
Basic Science Laws: See Basic Science
civilization based on, 1345—ab
individuality and, [Blakeslee] *327
insurance against misuse of, 1293—ab
Laboratories: Panaroid and Blidad Tablets,
318—BI

Laboratories: Panaroid and Bliada Tauter, 318—BI
Pan American Scientific Confederation, 993
SCIENTIFIC Manufacturing Company, Inc., 1512—BI
Nutrition Corporation: Foodex, 1450
SCLEROSIS: See Arteriosclerosis; Liner cirrhosis: Nephrosclerosis; etc. amyotrophic lateral, vitamin E for, [DeJons] 481—ab; [Harvey] 1003—ab
Mönekeberg's [Lisa & others] *1255
multiple, obstipation in, 858
multiple, vitamin E fet, [Meller] 223—ab

VOLUME 118 NUMBER 17 SCOPOLAMINE hydrobromide, effect on fibrillation and tremor, [de Jong & Simons] *704 SCURVY, cause of death in U. S., [Jolliffe & others] *945 prevention, black currant puree, [Payne] 927 vitamin deficiency disease due to food ration, France, 475 SEAL, toxicity of liver of, 337; (reply) [Suttonl 1026 SEASICKNESS, magnesium sulfate for, [Poch] 1258—ab
SEATWORMS: See Oxyuriasis
SEATTLE Surgical Society, 549
SECRETARIES: See Societies, Medical
SECURITY: See Farm Security; Federal Security; Social Security
SEDIMENTATION Rate: See Blood
SEIBERT Award: See Prizes
SELECTIVE SERVICE: See Medicine and the
War
SELMAN Managerical Leading Co. SEMEN: See Spermatozoa SEMILUNAR CARTILAGE, sulfonamides locally promotes healing after meniscectomy, [Bick] *512 EMINOMA: See Dysgermlnoma
SENILITY: See Old Age
SENSES: See Hearing; Taste; Vision; etc.
SENSITIVITY; SENSITIZATION: See Anaphylaxis and Allergy
SEPTICEMIA: See also Bacteremia; Bacteria, coli; Streptococcus viridans
true mixed, [Kanof] 487—ab
SEROTHERRAPY: See Serum Therapy (cross reference) serotherar: See Serum Therapy (cross reference)
SERUM: See also Vaccine
anti-thrombocytic, [Shimizu] 756—ab
Blood: See Serum, plasma; etc. and subheads under Blood
Commonwealth Serum Laboratories, Australia, 913
Convalescent: See Peritonitis
Dried: See Blood Transfusion
Plasma: See also Globulin
plasma, clinical use; preservation, [Strumia & McGraw] *427
plasma, dried, liquid or frozen compared, [Newhouser] 1252—ab
plasma (lyophile) intravenously in hemophilia, [Johnson] *799
plasma (lyophilized convalescent peritorities) plasma (lyophilized convalescent peritonitis pooled), [Bower & others] *1284 plasma, normal human dried, (Circular Letter No. 28) 1375 plasma package of Sharp & Dohme wins award, 1232 plasma preparation in small hospital or clinic, plasma preparation in small hospital or clinic, [Semoff] 1414—ab

plasma, preservation with sulfonamides, [Heath & Province] *1034

Plasma Transfusion: See Blood Transfusion plasmapheresis, effect of pectin solution as blood substitute, [Hartman] 1161—ab

Pregnant Mare's: See Gonadotropins

Rabbit: See Pneumococcus

Therapy: See Otitis Media; Pneumonia; Trybus Therapy: See Otitis Media; Pneumonia; Typhus
SERVANTS: See Domestic Servants
SEWALL Lecture: See Lectures
SEX: See also Fertility; Sterility; Sterilization, Sexual
Function, Decline of: See Menopause
Function, development (Puberty): See Adolescence; Menstruation, inception of
Glands: See Gonads
Hormones: See Androgens; Estrogens; Gonadotropins
Infantition: See Infantilism Infantilism: See Infantilism Intercourse: See Coitus nitrates and sexual potency, 858 Organs: See Genitals
ratio in congenital clubfoot, [Mau] 257—ab
SHACKELTON'S Inhaler and Inhaler Compound,
317—BI
SHARKLIKE fish, liver of, rich in vitamin A,

159 SHARP AND DOHME blood plasma package SHARP AND DOHME blood plasma package wins award, 1232
SHAVING, dermatitis due to, 1170
soaps, as detergents, [Lane & Blank] *808
SHELTERS: See under Air Ralds
SHERMAN, H. C., Modern Bread, 1218—E
SHERMAN ACT, National Wholesale Druggists'
Association indicted under, 831
SHIN Splints, 1339
SHIP'S doctor missing: Dr. Whitehead, 1151
SHOCK, adrenal coriex steroids relation to,
[Freed] 1403—ab
Anaphylactic: See Anaphylaxis and Allergy
Convulsive Therapeutic: See Dementia Precox
Electric: See Electric shock
Insulin: See Insulin
surgical, or "liver death," 1170
Therapeutic: See Dementia Precox
treatment, plasma, [Strumia & McGraw] *429
SHOES and slippers, ringworm reinfection from,
[Jamisson] \$13—ab
Massagic, 164—BI
U. S. Army will purchase 4 million, 465
SHORT WAVE: See Diathermy

SHOULDER: See also Clavicle; Scapula

SHOULDER: See also Clavicle; Scapula care of, to avoid arthritic deformities, [Joplin & Baer] *938 compression of brachial plexus: scalenus anticus syndrome, [Reichert] *294 pain, diagnosis by laminagraph, [Jostes] *353 periarthritis, diathermy vs. x-ray therapy, [Solomon] 405—ab tenodesis of, healing, sulfanilamide locally promotes, [Biek] *511
SHRAPNEL injuries to head at Pearl Harbor, [Cloward] *267
"SICKLEMIA," cerebral necrosis in [Connell] *803
SICKNESS: See Disease: Health: Patients SICKNESS: See Disease; Health; Patients (cross reference) Insurance: See Insurance, health Rate of: See Vital Statistics SIGMA XI Lecture: See Lectures 1335 SIGMA XI Lecture: See Lectures
SILICA, effect on susceptibility to tuberculosis,
[Gardner] 642—ab
SILICON and silicon halogens, 857
SILICOSIS: See Pneumoconiosis
SILK, artificial: See Nylon; Rayon; Vinyon
SILVER clips, Cushing's, role in metastases in
medulloblastoma, [Halpern] *803
nitrate, N. N. R., solution 1% W/V (Merrell),
1216 -RI nitrate, routine flushing vagina and vulva of newborn, [Notes] 1317—C not excreted in urine, [Aub & Fairhall] 319—C SIMMONDS Disease: See Pituitary cachexia SIMULATION: See Malingering SIMMONDS Disease: See Pituitary cachexia
SIMULATION: See Malingering
SINGULTUS: See Hiccup
SINUS, Carotid: See Carotid Sinus
Pilonidal: See Pilonidal Sinus
SINUSITIS, NASAL, aerosinusitis, [Campbell]
1330—ab chest surgery relation to, [Ormerod] 257—ab nostrum; Minus-Sinus, 317—BI treatment, short wave, [Brighton & others] *507 treatment, sodium sulfathiazole or azosulf-amide spray, 181; 261; 567 treatment, tyrothricin, [Herrell] 1401—ab treatment, vaccines for chronic type, 494 SKELETON: See Bones; Musculoskeletal System
SKIN: See also Dermatology; Tissues
action of new detergents on, [Lane & Blank androgens, percutaneous potency, [Greene] 561—ab; [Hollander] 1406—ab cancer (accessible), high voltage irradiation, cancer (accessible), high voltage irradiation, [Sims] 1014—ab Cleansing: See Detergents; Soap Cosmetics: See Cosmetics deciduous, 1421 Disease: See also Acne; Dermatitis; Skin infections; Urticarla; etc. Disease, Occupational: See Industrial Dermatorse. security m 314; 477 service we *1065 disease (postellmacteric) of men; androgen ointment for. [Hollander] 1406—ab disease, sulfathiazole locally, [Robinson] 408 —an disorders from sunlight, [Lampe] 326—ab does it breathe? death of woman covered with gold paint, 568 dry, superfatted soap used for, [Kile] 1406—ab -ab
Eruptions: See Eruptions
Exfoliation: See also Dermatitis exfoliativa
exfoliation of hands and feet, 1421
exfoliation (periodic) of, 681
Hemorrhage: See Purpura
Infections: See also Carbuncle; Furunculosis; Pyoderma infections, pyogenic, diabetes predispose to?
[Williams] *1357 [Williams] 13301 infections, pyogenic, sulfathiazole olntment, [Winer & Strakosch] *221; [Pillsbury] \$42-ab infections, sulfanllamide powder locally. s42—au infections, sulfanilamide powder locally, [Marshall] 410—ab injuries caused by implanted particles of light metals, 337 irritant (primary) defined, [Lane & others] 653-0S **★614** Itching: See Eczema; Scables lesions, bichloroacetic acid for, 850 manifestation of mainutrition, [Jolliffe & others] *946
menstrual changes of, [Schölzke] 929—ab of face, matching ointment colors to, 936 ycosis: See Dermatophytosis; Epidermo-phytosis; etc. phytosis; etc.
Peeling: See Skin, exfoliation
polklloderma-like changes in, after arsphenamine [Cannon & others] *122; [Shelton]
664—C...... aluminum fluoride, bone changes due to, [de Senarclens] 561—ab benzylphenol (fara- and ortho-) use as fungleide, 1026 bicarbonate intravenously in diabetic ketosis, [Owens] 670—ab bicarbonate therapy in gastric ulcer and high incidence of urinary calcult, 1422 bicarbonate, to prevent renal lesions from sulfathiazole, [Climenko] 484—ab; [Winsor & Burch] *1346 664—C
pseudoepitheliomatous hyperplasia [Mercer & Obermayer] *139; [Mezey] 664—C
Rash: See Eruptions
Reaction: See also Skin test; Tuberculin reaction to specific soluble substance (Francis test) in pneumonia, [Meyer] S3—ab sensitizing antibodies, to human dander, [Hampton] 486—ab

1567 SKIN-Continued SKIN.—Continued
Test: See also Skin reaction
test, coccidioidin, in coccidioidomycosis,
[Davis & others] *1182
test, intracutaneous allergic, \$58
Ulcers: See Ulcers
SKULL: See Cranium
SLEEP: See also Anesthesia
disorders, narcolepsy, electroencephalogram in,
[Gibbs] *216
Pillow Arrangement While Sleeping: See
Pillows Pillows Pillows
10 tricks on how to relax, by Josephine Rathbone, 537—E
SLEYSTER, ROCK, death; portrait, 915
SMALLPOX vaccination by 1942 May Day objective, 658; 1220—E
vaccination combined with diphtheria, [Reh] 1335—ab SMIT, ANTOINETTE, Dutch East Indies herb preparations, 164—BI SMITH, AUSTIN E., acting secretary of Council on Pharmacy and Chemistry, 906—OS SMITH, H. J., Novelty Rubber Company, 837 SMITH (THEOBALD) Prize: See Prizes SMITH-REED-Russell Society, 334—SS SMITHWICK Operation: See Nerves, splanchuic SMITHWICK Operation: See Nerves, splanchnic SMOKING: See Tobacco SMYTH, JOHN, portrait, 239
SNAKEBITE, treatment, antivenins, 913
SNEEZING, droplet infection from, publicity on, 336
SNELLEN'S test vs. Jaeger series for testing vision, 1170
SNOW Award: See Prizes
SOAP: See also Detergents
A.M.A. Committee on Cosmetics report, [Lane & Blank] *894; *898; *899; *813
sensitivity to, 1169, [Lane & Blank] *815
superfatted, use for dry skins, [Kile] 1406—ab therapy of scables with benzyl benzoate and, [Lutz] 1016—ab
SOCIAL agency: state hospital, [Overholser] 
**hyglene, American Social Hyglene Associa-*1021 hyglene, American Social Hyglene Associa-tion, (syphilis test required of industrial employees), 549 hygiene, annual regional meeting, New York, 392 hygiene, National Social Hygiene Day (sixth). hygiene, National Social Hygiene Day (sixth), 60; 393
Insurance: See Insurance, health Security Act, A.M.A. Board of Trustees viewpoint on further extension of, 820—E; 1478—0S; 1481—0S Security Act, expansion of local health or-ganization under 1502-OS medical services in New Zealand, workers, number in all hospitals, *1065
SOCIALIZED MEDICINE: See Insurance, health: Medicine, state
SOCIETIES, MEDICAL: See also under names of specific societies; list of societies at end of letter S constituent associations of A, M, A., 1459—OS county, action in expelling physician from membership, Bureau report, 1476—OS county, Dr. Lawson secretary for 63 years, 908 908
county, secretaries conference, (Ind.) 239;
(also presidents, W. Va.) 393; (Mich.) 470
District of Columbia Society adopts plan for
periodic examination, 331
history, Connecticut State Medical Society observes 150th year, 655
Medical Preparedness and: See Medicine and
the War medical societies.

Medical Freparedness and See Medicine and the War, medical societies Nebraska Negro Medical Society, 310 Society for the Study of Asthma and Allied Conditions, 393 Society of American Bacterlologists election, 1152

1152
Society of Medical History of Chicago, 309
Society of University Surgeons, 311
state and county, committees on industrial health in. (Council report) 1471—0S
state, associate membership, Conn., 238
state, benevolent fund committee, Okla., 156
state, Michigan Medical Service operated by,

553-08 state, new procedure for annual meeting. West Va., 241 state, Orgon Physicians Service Bureau under control of, 654-08 state, secretaries, Annual Conference, 1459 -08

SODA, Baking: See Sodium bicarbonate SODEMAN-Engelhardt kidney test, 768 SODIUM acid phosphate, effect on intestinal pu,

SODIUM-Continued caccdylate, use of, 936
Chloride: See also Salt
chloride plus adrenal cortex extract to prevent
heat disorders, [Böttner] 413—ab
chloride solution (physiologic) in shock with
hemoconcentration, [Blotner] *219
clirate offset citrate effect on thrombocytes, [Sonder] 564 hypochlorite spray to control air borne infec-tion, [Buchbinder] *728 lactate, dextrose 5 per cent W/V in, N. N. R., (Baxter) 227 (Baxier) 221 Lactate (Racemic) ½ Molar (1.87 per cent) W/V—Upjohn, 1216 Lactate Ringer's Solution, N. N. R. descrip-tion, 226 nitrite as vasodilator, 181 oxylate, effect on thrombocytes. [Sonder] 564 diPhenyl hydantoinate: See Phenytoin Sodium
Salt of Sulfathiazole: See Sulfathiazole
Sulfadiazine: See Sulfadiazine
Sulfate, concentrate globulin fractions for
rapid blood typing, [Thalhimer & Myron]
*370 Sulfathiazole: See Sulfathiazole
tetrathionate effect on blood oxygen in thromboangilitis obliterans [Theis] 1256—ab
thiosulfate effect on blood oxygen in thromboangilitis obliterans, [Theis] 1256—ab
Thiosulfate, N. N. R. (Flint, Eaton & Co.), Thiosultate, N. N. R. (Flint, Eaton & Co.), 141
SOIL, Removal of: See Detergents
SOLDIERS: See also Army; Medicine and the War; World War
Civil Relief Act of 1940, 306; 1478—OS forbidden to hitch-hike, 542 identification tags, 541 in armor, 833
Irritable Heart: See Asthenia, neurocirculatory Irritable Heart: See Asthenia, neurocirculatory

SOLUTION: See under names of specific substances as Dextrose; Sodium chloride of problems and leadership, 1195—ab

SOLVENTS: See also under names of specific solvents as Benzene; Naphtha; Toluene possible urticarla from, 1169

SOMATIC Complaints: See Psychosomatic Medicine SOMMER Memorial Lectures: See Lectures SOMMER Memorial Lectures: See Lectures
SORKO and Mizar, 837—BI
SOROKOWSKI, and "Mizar," 837—BI
SOTO, MARIO, appointment, 63
SOUNDS: See Heart; Noise; Thorax
SOUTH AMERICA: See also Argentina; Brazili,
Brazilian; Latin American; etc.
graduates, stipends for, [Stice] *236; 550
(Rockefeller Foundation) 1310
SOUTHEASTERN Surgical Congress, 746
SOUTHERN Conference on Tomorrow's Childen, 241
incidence of typhoid, [Whitfield] \$39—C
Surgical Association, 311
de SOUZA Prize: See Prizes
SOVIET Russia: See Russia
SPANISH, study of, by American physicians,
[Stice] *236
SPAS: See Health resorts
SPASMOPHILIA: See Tetany SPASS See Hearn resolus SPASMOPHILIA: See Tetany SPASMS: See Cramps SPECIALISTS: See also under types of specialists cialists
Certification: See Specialties, examining board
Dayton Medical Specialist Unit ordered to active duty, 465 in allied medical field comprise Sanitary Corps, [Darnail] *904 insuring continuous supply of, A. M. A. and Advisory Board confer, 1149—OS share fees with members in services, Indianapolis, 1227
U. S. Army Specialist Corps formed, 824
SPECIALTIES: See also under name of specialties as Gracology; Obstetrics; Pediatries; etc.
Examining Boards: See also Adrisory Board; American Board examining boards, 25—ab examining boards, 25—ab examining boards, A. M. A. committee to confer with, proposed, 1488—OS military service and specialization, 634
Navy recognizes allergy as a specialty, 465
SPECIFIC GRAVITY, falling drop method; alinement chart, [Barbour & Hamilton] 248—C of healthy men, [Behnke & others] *495; Certification: See Specialties, examining

SPHENOID: See Ethmosphenoidal Epiglot-tidean Syndrome SPIDER, black widow bites, [Gajardo Tobar] 1259—ab

1169 248—C of healthy men, [Behnke & others] *495; [Welham & Behnke] *498
SPECTACLES: See Glasses
SPEECH: See also Voice difficulties of, Holmes' familial cortical cerebellar atrophy, [Hall] 672—ab disorders, National Hospital for, clinic at, 744
SPERMATOZOA, spermatogenesis and fertility, 935

SPINA BIFIDA, distant neuroanatomic complications, [Lichtenstein] 1407—ab
SPINAL ANESTHESIA: See Anesthesia, spinal
SPINAL CORD lesion, myeloscopic diagnosis,
[Pool] 1413—ab
lesion of spina bifida, [Lichtenstein] 1407—ab
lesion (possible), 856
syringomyelia, [Roemer] *708
tumor, possible, 681
SPINAL FLUID: See Cerebrospinal Fluid
SPINAL MENINGITIS: See Meningitis, cerebrospinal epidemic
SPINE: See also Back
abscess, Salmonella schottmülleri isolated PINE: See also Back abacess, Salmonella schottmülleri isolated from, [Ecker & others] *1296 arthritic deformity, care to prevent, [Joplin & Baer] *941 arthritis (rheumatold: rhizomelique), roentgen treatment, [ran Ebbenhorst] 90—ab brucellosis spondylitis; hyperpyrexia for, [Phalen & others] *859 currature, inflammatory lordosis, [Schramm] 413—ab lesion (intraspinal), low back pain due to, [Rowe] 408—ab occipilocervical: neck pain, laminagraph diag-[Rowel 408—ab occipitocervical: neck pain, laminagraph diagnosis, [Jostes] *253 stretchers, Pandfculator, 1240—BI tuberculosis, Pott's disease, [Harris] 253—ab tumors, metastatic, medulloblastoma; role of Cushing's clips, [Halpern] *803
SPIROCHAETA Pallida: See Treponema palifichmen SPIROCHALTA PARIGA: See Treposters indum
SPLANCHNIC Nerve: See Nerves
SPLEEN, Enlarged: See Splenomegaly
Excision: See Splenoctomy
glutathione content, pilocarpine effect on,
[Izaki] 414-ab
hormone action of, Naegele's theory, [Pernokis] *866
metanlasia (agnogenic myeloid), [Reich & metaplasia (agnogenic myeloid), [Reich & Rumsey] *1200 traumatic rupture; nodular splenic implants in peritoneal cavity, [Hamrick] 1329—ab SPLENECTOMY, danger in agnogenic myeloid splenic metaplasia, [Reich & Rumsey] *1200 in Banti's disease, [Wada] 851-ab in medical practice; 13 cases, [Pernokis] *\$65 life expectancy after, 1340 remote results, [Wada] 851—ab SPLENOMEGALY, Bant's disease, splenectomy in, [Wada] 851—ab SPLINTS, ladder wire splints used in Army, 1146 plaster and other types to prevent arthritic joint deformity, [Joplin & Baer] *937 shin, 1339 SPONDYLITIS: See under Spine SPONDYLITIS: See under Spine
SPORTS: See Athletics
SPORTS: See Athletics
SPOTTED FEVER: See Rocky Mountain
Spotted Fever
SPRAY, chemical, to control air borne infection,
[Buchbinder] *728; 734—E
Nasal: See Nose; Sinusitis, Nasal
Painting: See Paint
SPREADING factor, Duran-Reynals, 380—E
SPRINGFIELD Medical Club lecture, 990
SPRUE, nontropleal: See Celiac Disease
pathogenesis, Hurst discusses types of, 1234
role of liver and intestines, [Harris] 1405—ab
SPUTUM: See Pneumonla SPUTUM: See Pneumonia SQUIXT: See Strabismus STAIN, Gram's, modified, [Peterson & Beuchat] STATE aid for schools, [Munro] *1031
Board: See STATE BOARD; STATE BOARD
REPORTS Civil Service: See Civil Service
Health Departments: See Health
Hospitals: See Hospitals
Legislation: See Laws and Legislation
Medicine: See Medicine, State
Societies: See Societies, Medical
STATE BOARD: See also Licensure
Federation and accelerated medical curriculum,
733—E: 986
STATE BOARD REPORTS
Alabama, 480
Arkansas, 480
California, 320 Civil Service: See Civil Service Arkansas, 450 California, 320 Colorado, 249; 480 District of Columbia, 165; 400 Georgia, 665 Kansas, 400

STATE BOARD REPORTS-Continued Kentucky, 665 Maine, 480 Minnesota, 839 Montana, 77 Minnesota, \$39
Montana, 77
Nevada, 249
New Mexico, 400
New York, 320
North Carolina, 480
Ohio, 400
Oregon, 77; 165; 751
South Carolina, 165
Texas, 76
Washington, 249
Wisconsin, 77
Wyoming, 165
STATISTICS: See Vital Statistics
STATISTICS: See Body height
STEAM, exposure to, for disinfecting instruments, 94
sterilization, inefficient, of cotton cause of puerperal tetanus, 242
STEATORNHEA, idiopathic: See Celiac Disease
STEBBING System of Height Increase, Fandiculator, 1240—BI
STENOGRAPHERS, medical, number in all hospitals, *1065
STERILITY: See also Eunuchoidism; Spermatozoa
Inducing: See Castration; Sterilization, Sex-Minneson, 77 Montana, 77 tozoa Inducing: See Castration; Sterilization, Sexnostrum: Ardanol, Chloro-Zol, Germ-I-Tale, 246-BI noncum: Ardanol, Chloro-Zol, Germ-I-Tabs, 246—BI
treatment, inject placental blood, [Halbrecht]
1015—ab
STERILIZATION, BACTERIAL: See also Antiseptics; Disinfection; Germicides
of Air: See Air, disinfection
of instruments, 94
of plasma with sulfonamide derivatives,
[Novak] *513
of sulfanilamide powder, [Mueller & Thompson] *189
pressure cooker for, 770
steam (inefficient) of cotton cause of puerperal tetanus, 242
sterility detectors of autoclaved material, 1263
"sterilizing" action of soap, [Lanc & Blank]
*811
STERILIZATION, SEXUAL: See also Castra-STERILIZATION, SEXUAL: See also Castration
measures in Germany, evaluated, 315
STERILOMETER, detector of autoclased material, 1263
STERNUM Marrow: See Bone Marrow
STEWART Memorial Lecture: See Lectures
STILLBESTROL: See Estrogens
STILLBIRTHS, antepartum diet effect on,
[Ebbs] 255—ab in cesarean section, [Cosgrove & Norton]

*201
STING: See Rose STING: See Bees
STÖFFEL neurectomy: See Neurectomy
STOKES-Adams Disease: See Heart block
STOMACH: See also Gastrointestinal Tract
achylia and pernicious anemia, [Fox] 1005 acidity, nostrum: Bowe's Tablets, 163—Bi bacteria and spirochetes in, 262 cancer, carcinomatous ulcer, [Eusterman] *1 cancer, methylene blue test for [Chamorro-K. Salinas] 177—ab cancer, 350 cases in infants, children, etc., [Goldstein] 1014—ab disease, bismuth carbonate in, [Alstead] 175—bisorder: See Indicestion ab Disorder: See Indigestion emptying time of old people, [Van Liere] extract, in pernicious anemia, 1025 Fistula: See Fistula functional, and intestinal distress, 857 gastroscopy, American Gastroscopic Club or-ganized, 910; (first meeting) 1310 Hemorrhage: See also Peptic Ulcer hemor-rhage rhage hemorrhage, feeding therapy (Menlengracht's), [Nicholson] 667—ab; [van Meeteren] 676 [Nicholson] 667—ab; [van Meeteren] 676—ab

motility, effect of hot and cold on, [Blegard & others] *447
niches (large) in, [Mybre] 90—ab
roentgen crater disappearance in miti-creary
therapy in ulcer, [Dick & Elsele] *33
secretion, beef fulce muscle incubated with
castric juice in anemia, [Moore] 1161—ab
Ulcer: See Pentic Ulcer
STOMATITIS, bismuth, and albuminuria, [Peters] 1250—ab
bismuth and mercurial, ascorbic acid in,
[Marin] 1260—ab
STOOLS: See Peces
STORAGE of Blood: See Blood conservation;
Blood Transfusion
STOVES for Russia, 987
STRABISMUS in joung child, 93; (relis)
STREPTOBACILLUS moniliformis: rational ferer, [Larson] 86—ab
STREPTOCOCCUS, hemolytic acute infectives
compilicating Addison's disease, adrenal certex extract and sulfadiazine for, [Them
& Lewis] *214

fect on, [Herrell]

hemolytic, chronic ulcers of extremities, sulf-anilamide orally, [Tavlor] *1198 hemolytic, diseases, Commission on Diseases, Hemolytic, 463 hemolytic, in acute otitis media and mastoid-itis, [Curtin] 1011—ab hemolytic infections, immunity to, [Doan] 1243—ab

hemolytic, infections, sulfadiazine for, [Long] 170-ab

170—ab Infections, air borne, [Buchbinder] *721 infections (cross) in hospital wards, 1235 infections in hospital plastic surgery ward, [Spooner] 926—ab infections, sulfanilamide for, [Herrell] 1011

-ab

viridins endarteritis, subacute, superimposed on patent ductus arteriosus, operative cure,

on patent ductus interiosus, operative cure, [Touroff & others] *890
Viridans Infection: See also Endocarditis, subacute bacterial viridans septicemia; sulfapyridine cures, [Moore & Tannenbaum] *372, [Nye] 917

STROPHANTHIN, digitalis test method with French mice, [Yamnanki] 851—ab STRUMA: See Golter Suprarenalls Cystica Hemorrhagica: See

Adrenals

STUDENTS: See also Children, school; Eduction, Schools; Students, Medical, University

eating habits at Wayne U, 330-SS

eating habits at Wayne U, 330—88 game with ideas, 1030—ab graduate, to observe work of AMA Bureau of Health at headquarters, 966—08 Latin-American, guests at Columbia, 764—88 Nursing: See Nurses professional, deferments of, 464, 632 tuberculosis in high school, [Nevius], 1255—ab

STUDENTS, MEDICAL: See also Education, Medical; Graduates; Interns; Schools, Medical

Association of, (pledge allegiance) 330—SS, (merge with Intern Council) 332—SS
British Medical Students Association, 994
Circle at Louisiana State, 764—SS
Commissions for: See Medicine and the War, medical students

medical students

Council at Maryland, activities, 333—SS defense stamp "favors" for, at Wayne, 762

Deferment under Selective Service: See Medicine and the War, medical students
Fellowships for See Fellowships

Fraternities: See Fraternities freshman class, Indiana U. selects it earlier, 334—SS

1034-SS
Holmes (Oliver Wendell) address to, in 1861, at Harvard, [Oppenhelmer] 319-C
loan fund, New York U, 1020-SS
Pennsylvania Undergraduate Medical Association, 1021-SS
Prizes See Prizes
Scholarships: See Scholarships

Prizes See Prizes
Scholarships See Scholarships
senior, industrial clinical clerkship, [Wampler] 647—ab
Society at Northwestern, 332—SS
Teaching: See Education, Medical
Women: See Physicians, women

SUBARACHNOID Injections: See Injections, subarachnoid

SUBDURAL Hematoma: See Meninges hemorrhage

SUCTION Drainage (Monaldi's): See Tuber-culosis, Pulmonary, cavities

SUGAR: See also Carbohydrates

UGAR: See also Carbohydrates in Blood: See Blood; Diabetes Mellitus in Urine. See Diabetes Mellitus, Glycosuria metabolism, Staphylococcus toxin action on, [Florio] 928—ab products, undesirable to add vitamin B complex (especially thiamine) in, 1469—0S rationing, amount allowed, France, 474 rationing in U. S, value to nation's health, [Guy] 1158—C

[Guy] 1158—C
SUICIDES, decrease, New York, 909
investigations on and its causes, 661
SULFADIAZINE effect on insulin dosage in
dlabetes, [Styron & others] *1426, *1427
intracranial use, [Hurteau] 1251—ab
N N. R. (description), 730
state distribution for pneumococcic infections,
N Y., 59
studies on, [Long] 170—ab
toxicity, in dlabetes, [Styron & others] *1423
Trentment: See Dysentery carriers; Lymphogranuloma Venereum; Pneumonia; Staphylococcus aureus; Streptococcus, hemolytic;
Typhold carriers
SULFAGUANIDINE, absorption, excretion and

SULFAGUANIDINE, absorption, excretion and therapy, [Beling] 1011—ab toxicity, morbiliform eruption, [Turell & Leifer] *977

SULFAGUANIDINE—Continued
Treatment. See also under
ative; Diarrhea, Dysentery; Lymphogranuloma Yenereum, Rectum inflammation; Venereum, Typhoid carriers

SULFANILAMIDE, absorption [Mueller & Thompson] *191 discovered in 1908 by P Gelmo, 862—ab effect on pneumonia sputum, [Frisch] 1006

-ab
N R, Tablets Sulfanllamide (McNeil), 49
nostrum Koch's "1.4 Benzoquinone" or "BQ," 734—E

pronunciation of the word, (Council report)

sterilization of powder, [Mueller & Thompson], *190
tablets, soldiers in combat areas to carry, 986

986
toxleit, effect on hemopoietic organs in polycythemia vera, need to make frequent blood counts, [Greenwald & others] *975
toxleity, misuse of in closed wounds, [Taylor] *959, [Ferguson] 1514—C
toxleity, warning against coal tar drugs, 907
Treatment See also Blackwater Fever,
Chaptery Country whereafty Endografia

reatment See also Blackwater Fever, Chancrold, Colitis, ulcerative, Endocardi-tis subacute bacterial, Infections, surgical; V 777, Gonorrhea Mastoiditi ٠,

Mastoiditi
myelitis,
Syphills, Throat abscess, Tuberculosis,
Pulmonary, Wounds
treatment at Honolulu and Pearl Harbor,
[Cloward] *267, 465
treatment, influence on postpneumonic empyema thoracis, [Burford & Blades] *950
treatment, intraperitoneal implantation in
pentioneum [Mueller & Thompson] *189,
[Jackson & Coller] *194, [Taylor] *960;
[Ferguson] 1514—C
treatment, local, [Bick] *511
treatment, local for sycosis, contaglous impetigo, etc. [Vlarshall] 410—ab
treatment, local implantation in wounds,
[Harbison] 1007—ab
treatment, local, in soft chancroid, [Guerra]

treatment, local, in soft chancroid, [Guerra] 849-ab treatment, local use in pleural cavity, [Bur-

treatment, local use in pleural cavity, [Burford] 924—ab treatment, spraying solution or blowing powder into nose, 181
SULFANILYLGUANIDINE See Sulfaguanidine SULFAPYRIDINE, effects on pneumonia sputum, [Frisch] 1006—ab
N. N. R., Tablets (Endo), 1217
sodium, plasma preserved with, [Novak] *513; [Heath & Province] *1305
toxicity, [Goldbloom] 486—ab toxicity, malignant neutropenia, [Goldman] 559—ab
Treatment See also Filariasis; Gonorrhea;

toticity, manghant 559—ab
Treatment See also Filariasis; Gonorrhea;
Meningitis, Pneumonia, Streptococcus viridans, Tuberculosis, Pulmonary
treatment in patent ductus arteriosus,
[Bourne] 411—ab
treatment, intraperitoneal, in generalized peritonitis, [Gottesman & Goldberg] *297
SULFARSPHENAMINE Treatment See Cardiovascular Disease, syphilis
SULFATES, detergents, [Lane & Blank] *811
in Urine. See Urine
CHILFATHAZOLE as antimalarial, [Schwartz]

SULFATHIAZOLE as antimalarial, [Schwartz] 559-ab

309-40 geffect on insulin dosage in diabetes, [Styron & others] *1426, *1427 effect on pneumonia sputum, [Frisch] 1008 --ab

—ab hidney lesions from massive doses, sodium bicarbonate to prevent [Cilmenko] 484—ab. [Winsor & Burch] *1336
N N R, (tablets, Lakeside) 141, (powder, tablets, Breon) 1052 ointment in skin infections, [Winer & Strakosch] *221, [Robinson] 408—ab plasma preserved with, [Novak] *513; [Heath Province] *1035 pronunclation of the word, (Council report) 378

378

sodium, for nasal spray and sinusitis, 567 sodium, hydrates of, (Council decision) 617 sodium, solutions in nose, 261 spray using propylene glycol for nose or throat, (Yonkman & others] 1317—C, (correction) 1507 spraying solution or blowing powder into

spraying solution or blowing powder into nose, 181 tablets, adulterated product improperly labeled, 658

toxicity, acute hemolytic anemia, [Quick & Lord] (correction), 157
toxicity, febrile reactions after readministration, [Lyons & Balberor] *955
toxicity, in diabetes, [Styron & others) *1423

toxicity, renal complications, [Winsor & Burch] *1346

toxicity, thrombopenic purpura, [Rosenfeld & Feldman] *974 reiomanj *974
Treatment See also Angina, Ludwig's;
Collits, uiceratire; Endarterlits; Gonorrhea;
Infections, pyogenic; Meningitis; Pneumonia, Staphylococcus aureus, Syphilis;
Thrombophlebitis

SULFATHIAZOLE—Continued treatment, adjunct to surgery, [Anderson] **892

treatment, intravenous, in acute appendicitis generalized peritonitis, [Gottesman & Gold-berg] *297

treatment, local, in dermatoses, [Robinson] 408-ab

SULFONAMIDE COMPOUNDS, American Pharmaceutical Association program on, 991 azosulfamide, spraying solution or blowing powder of, into nose for sinusitis, 181

ethyl-alpha-sulfonate; new derivative, [Mutch] kidney calculi caused by, 1263

plasma preservation using [Novak] *513; [Heath & Province] *1034 prophylactic in gonorrhea, \$58 solubility of, 1025 Sulfadiazine See Sulfadiazine

solubility of, 1025
Sulfadiazine See Sulfadiazine
Sulfaguanidine See Sulfaguanidine
Sulfanilamide. See Sulfanilamide
Sulfanilamide. See Sulfanilamide
Sulfanilazole
See Sulfathiazole
Thiazole Derivatires: See Sulfathiazole
tovicity, fistulous tract in mouth and osteomyelitis after tooth extraction, [Kiestadt]
998-C, (reply) [Fletcher] 998-C
tovicity, interstitial myocarditis, [French]
1248-ab
tovicity, urolithiasis and

toxicity, urolithiasis and urea, [Sobin] 1324

Treatment See also Angina, Ludwig's; Gangrene, gas; Ottits Media; Pyelonephritis; Respiratory System infections; Trichoma treatment, course on, NY, 1308 treatment, local in grs gangrene, [Reed] 1415

treatment, local, in nose, [Klestadt] 998-C; [Fletcher] 998-C SULFONATED or sulfated detergents, [Line & Blank] *811

SULPHO-MATIC, Faultless Laboratories, 318 -BI

-BI
SUNLAMP · See also Ultraviolet Rays, lamps
New Twin-Arc, 247—BI
SUNLIGHT, Sensitivity to · See Light
sun screen ointments for photosensitization
from petroleum products, 769
vitamins and ultraviolet lamp as substitute
for industrial establishment, 768
SUPPURATION · See Abscess; Ulcer; under
name of organ, region or disease affected
as Lymphatic System, olitis Media
SUPRARENALIN · See Epinephrine
SUPRARENALS. See Adrenals
SURGEONS, American College of, (sends £2000

SURGEONS, American College of, (sends £2000 to Royal College) 312; (meeting dates changed) 549; (one day "War Sessions") 738, 985, 1456; (cooperate with A M A. on hospital census blank) *1054 anesthetist, mutual relationship, [Gillespie] *787

Flight See Aviation
Industrial: See Industrial Health
Orthopedic: See Orthopedics
Royal College of, (museum wrecked) 158;
312; (to form new pathologic war collection) 747
Society of University Surgeons, 311
SURGERY: See also Sterilization, Bacterial;
under names of specific diseases, regions
and organs

under names of specific diseases, regions and organs
American Surgical Association, 993
Anesthesia in See Anesthesia
Annals of Surgery to appear in Spanish, 1381
Argentine Congress of, 243
Brazilian Congress of, 522
British Journal of Surgery, Hey Groves resigns as editor, 552
Central Surgical Association, 639
effect of surgical trauma on venous blood pressure, [Ollinger] 1418—ab heart arrest (20 minute) during operation, [Adams & Hand] *133
Instruments See Instruments
[Boman] 490—ab operations, [Boman] 490—ab operation of wash basin,

operating room, contribution of wash basin, [Poppe] 1007—ab operating room, hypoxia hazard of, [Batten]

operating room, hypoxia hazard of, [Batten] 1163—ab operating room, small air conditioning unit in, 419 operating room, ultraviolet lamps to disinfect air, (Council report) 298 patient able to digest food, methylene blue test of, [Golden] 401—ab patients, number operated on in all hospitals, *1064; 1114—E Pearl Harbor experience, [Moorhead] *712 Plastic: See also under organ affected as Cranium, Tibla plastic, Latin American Congress of (second).

plastic, Latin American Congress of (second), 394 plastic, library bequeathed by Dr. Undegraff,

547
plastic, ward, infection in, [Spooner] 926—ab
Postoperative Compileations. See Respiratory
System infections; Shock; Thyroidectomy
pre- and postoperative use of pitressin, [Wjlie] 405—ab

SYNCOPE. Vertigo

SURGERY-Continued

SURGERY—Continued
Seattle Surgical Society, 549
Shock in: See Shock, surgical
Southeastern Surgical Congress, 746
Southern Surgical Association, 311
Soviet doctors use American methods, 1382
Suture See Sutures
"traumatic," [Rodster] 1178—C
Western Surgical Association, (election) 472
Wounds: See under Wounds
SUTURES, nonabsorbable zitor, nylon and
vinjon, [Narat] 488—ab
suturing, débridement and chemotherapy
[Howes] 651—ab
SWABS, NH cellophane tipped, for pinworms

SWABS, NIH cellophane tipped, for pinworms

SWEAT, decrease in, from eyerine hydro-chloride, [Levin & Behrman] *11 dyshidrosis, mixed vaccines for, [Dosn] 412 -ab hyperhidrosis (localized), roentgen treatment,

hyperhidrosis (localized), roentgen treatment, safe? 682
SWEAT GLANDS, roentgen irradiation in hydroadenitis, [Fried] 929—ab
SWELLINGS, body, precipitated by pressure around mensitual period, 262
SWIFT & Co nutrition fellowship at Plitsburgh U, 60
SWINDLERS See Impostors
SWISS Society for Psychiatry, 661
SYCOSIS, treatment, sulfanilanide powder locally, [Marshall] 410—ab
SYMPATHECTOMY for vascular disease, [Har ris] 922—ab periarterial, for intermittent claudication, [Ibhardt] 1260—ab
SYNCOPE. See also Carotid Sinus 1effee, Vertigo

comparative features of epileptic scizures and,

comparative features of epileptic scizures and, [Welss] *529
treatment, [Welss] *529
SYPHILIS See also Venereal Disease, under specific organ or disease affected
Cardiovascular. See Cardiovascular Disease, syphilis
cerebrospinal See Neurosyphilis
congenital, effects on teeth, [Johnston] 1405
-ab

congenital late, treatment, and marriage, 1339
Diagnosis. See Syphilis, serodiagnosis
epidemic (first) of, 1494—, 329—SS
in Hawaii, [Kepner] 1099—ab
in infant, plus minus serologic reaction, 770
in Pregnancy See Pregnancy
in Selectees, Recruits and Soldiers See
Vedicine and the War, venereal disease
Neurosyphilis See Neurosyphilis
rejection for military service, 1147
serodiagnosis, Chediak test, 262
serodiagnosis, false positive reactions, [Mohr]
323—ab

serodlagnosis, false positive reactions, [Mohr] 323—ab serodlagnosis, Kahn verification test, [Churgin] 669—ab serodlagnosis, sphilophobia or negative reactions, 182 serodlagnosis test (premarital) required by states, [Forster & Shaughness] *792 serodlagnosis test required of industrial employees, 549 serodlagnosis, Vernes' test, 682 symposium at Long Island College, 830 syringomyelia preceded by, [Roemer] *709 tertlary, 418 transmission by maid, 680 treatment, arsenicals, fatal reactions, [Hahn] 560—ab tarsphenamine dermattic polikion of

beatment, arsphenamine dermatitis politio-derma-like changes in skin, [Cannon & others] *122, [Shelton] 664—C treatment, Bismuth Ethylcamphorate (Up-john Co), (Council report) 896, (N N R description and brands) 979 treatment, clorarsen, (Tompset(† 1010—ab) treatment, clorarsen, [Tanther] 1252

treatment, 5-day mapharsen, severe reaction from, [Rattner & Falk] *1368 treatment, 5-day neoaryblenamine and mapharsen, [Epstein] 485-ab, [Bryan] 1336

treatment, follow-up to determine efficacy, [Rajka] 412-ab treatment, in patient with poor velus, bis marsen or bismuth salicylate in, 494 treatment, mapharsen, headraches after 770 freatment, mapharsen, toxic reactions. [Levin & Keddie] *368 treatment of mother in pregnancy with minus test but plus in father? 1122 treatment, sulfantiamide, arsenicals and bismuth, [Brunet] 560-ab uterus cervical cancer relation to, [Harding] 1408-ab

### SOCIETIES

Academia Nacional de Medicina of Bucnos Aires, 659, 910 Alabama, M A of the State of, 1230 Am Acad of Ophthalmology & Otolaryngology, 61, 992 61, 992
Am Acad of Orthopaedic Surgs, 745
Am Acad of Pediatrics, 831
Am A for the Advancement of Science, 831
Am A of Anatomists, 993
Am A of Cereal Chemists, 547
Am A of Industrial Phys & Surgs 1152
Am A of Obstetricians, Gynecologists, & Abdominal Surgs 60 man Surgs 60

Am A of Pathologists & Bacteriologists, 99.2

Am A of Scientific Workers on Venereal Disease

Problems in the Aims & Civilian Defense

Areas, 657 Areas, 657

Am A for the Study of Neoplastic Diseases, 1310, 1381

Am A for Thoracic Surg 992

Am Bacteriologists, Soc of, 1152

Am Chemical Soc (New York Section), 240

Am Coll of Phys., 548, 1233

Am Coll of Radiology, 746

Am Coll of Surg (Clinical Cong), 519

Am Cong on Obstetrics & Genecology, 993

Am Cong of Physical Therapy, 990 1152

Am Federation for Clinical Research, 1381

Am Gastroscopic Club 910 1310 Gastroscopic Club, 910, 1310
Industrial Hygiene A, 1152
Institute of Public Opinion, 241
Laryngological, Rhinological & Otological oc., 392  $\Lambda m$ Am Institute of Public Opinion, 241

Am Laryngological, Rhinological & Otological
Soc, 392

Am Libiary A, 746

Am Orthopsychiatric A, 472

Am Pediatric Soc, 1233

Am Piarm A, 991

Am Pharm Manufacturers' A, 60

Am Phys Art A, 1381

Am Psychiatric A, 239, 831, 992

Am Social Hyghene A, Inc., 60, 393, 549

Am Soc of Anesthetists, 472, 1232, 1380

Am Soc for the Control of Cancer, 831, 1310

Am Soc for Pharmacology & Experimental
Therapeutics, Inc., 993

Am S A, 993

Arkansas M Soc, 1307

Aikansas Soc of Obstetrics & Gyncology 169

Ayociaclon Argentina de Medicos Highenistas,
746

A for the Advancement of Psychoanalysis, 1381 Am A for the Advancement of Psychoanalysis, 1381 A of Life Insurance M Directors of America, 393 A for the Advancement of Psychoanalysis, 1381
A of Life Insurance M Directors of America, 393
A of Military Surgs, 745
Birth Control Federation of Am 311 1152, 1232
Brazilian Cong of Ophthalmology, 659
Brazilian Cong of Ophthalmology, 659
Brazilian Cong of Surg, 552
British War Relief Soc, Inc. 312
Brooklyn Tuberculosis & Health A, 1380
California Heart A, 1378
California Heart A, 1378
California Hosquito Control A 469
Central Neuropsychiatric Hosp A, 908
Central Soc for Clinical Research, 1161
Central S A, 659
Chicago Heart A, 517
Chicago M Soc, 744, 907, 1379
Colorado State M Soc, 399 469
Conf of State & Provincial Health Authorities of North America, 658
Connecticut, Manufacturers A of, 1307
Connecticut Physical Therapy Soc, 1152
Connecticut Bate M Soc 238 675 741, 1307
Dallas Southern Clinical Soc, 210, 715
Delaware, M Soc of, 1378
Bedware Public Health A 907
District of Columbia, M Soc of the, 309, 391, 999, 1378
Doctors Musical Soc of Brooklyn 1308
Isastern Conf of Rudiologists, 471
Federation of Am Societies for Experimental Biology, 1150, 1153
Florida Public Health A, 209
Fulton County (Ga) M, Soc, 1378
Georgia, M A, of, 1307
Georgia Pediatric Soc, 58
Gorgas Memorial Institute of Tropical & Preventive Med, 393
Harrisburg (Pa) Acad of Med 1151
Illinois Conf on Social Welfare, 1378
Illinois Public Health A, 1307
Illinois Welfare A., 1318
Illinois Neulare A., 1318
Illinois Neulare A., 1318
Illinois Welfare A., 1318
Indiann State M A, 239
Inter-Am Scientific Conf., 473
Internat A of M Museums, 992

tion) 745 SYPHILOPHOBIA, 182 SYRACUSE University "Cancer Teaching Day," SYRINGES, chemical disinfection, 94 SYRINGOMYELIA; clinical evaluation, [Roe-mer] *708

SYPHILOLOGY, American Board of, (examina-

Acad—Academy
Am—American
A—Association
A—Association
A—College
Conf—Conference
Cong—Congress
Cont—Contention
Dist—District
Hosp—Hospital
Internat—International
A—Medical

Mid—Vledicine
Ant—National
Phorm—Pharmaceutical
Phiss—Phissicians
Rri—Railian
Rri—Recision
Rri—Railian
Rri—Railian
Surg—Souriery
Surg—Surgeous
Internat—International S—Surgical
M—Medical

Iowa Acad. of Ophthalmology & Otolary ngology, 391
Iowa Interprofessional A, 239
Iowa State M Soc, 391, 990
Iowa State Pediatrie Soc, 1150
Kansas M Soc, 1379
Kings, M Soc of the County of 59, 1308
Lahc County (Ind) M Soc, 656
Latin Am Cong of Plastic Surg, 394
Los Augeles County M, A, 517
Louisiana Public Health A, 310
Louisiana Public Health A, 310
Louisiana State M Soc, 1230
Louisiana Tuberculosis & Public Health A, 741
Maryland A of M & Public Health Laboritories, 908
Massachusetts M Soc, 656
Mevican Cong, of Internal Med, 312
Mevican Soc, of Ophthalmology, 659
Michigan Pathological Soc, 656
Michigan State M Soc, 470, 547
Mid-South Post Graduate M Assembly, 393
Minnesota Radiological Soc, 659
Missouri State M Soc, 470, 547
Mississippi Valley Conf on Tuberculosis, 715
Mississippi Valley M, Soc, 659
Missouri State M, A, 1231
Nat Acad, of Sciences, 157
Nat Conf on Industrial Hyglene, 1153
Nat Conf on M Service, 393
Nat Gastroenterological A, 832
Nat Malaria Committee, 311
Nat Nofse Abatement Council, 715 Iowa Acad. of Ophthalmology & Otolaryngologe, 391 Nat Conf on M Service, 393
Nat Gastroenterological A, 832
Nat Malaria Committee, 311
Nat Noise Abatement Council, 715
Nat Proctologic Certification Committee, 172
Nat Soc for the Prevention of Blindness, 157
Nat Tuberculosis A, 1153
Nat Tuberculosis Committee, 1310
Nat Wholesale Druggists' A, 831
Nebraska Negro M Soc., 310
Nebraska State M A, 1308
New Jersey Health Officers A, 1231
New Jersey, M Soc of, 1380
New Jersey, M Soc of, 1380
New Jersey, Soc of Furss of, 471
New Mexico Public Health A, 392
New York Acad of Med, 59, 909
New York Acad of Med, 59, 909
New York, M Soc of the State of, 316, 518, 909, 1151, 1308, 1380
New York, M Soc of the State of, 316, 518, 909, 1151, 1308, 1380
New York Tuberculosis & Health A, 657
North America, State Territorial & Provincial Health Authorities of, 1381
Northern Tri-State M A, 1150 North Carolina Obstetrical & Gynecological Soc, 311
Northern Tri-State M A, 1150
Obilo Soc of Anesthetists, 1232
Obilo State M A, 1309
Oklahoma Pharm A, 136
Oklahoma State Mosp A, 210
Oklahoma State Mosp A, 210
Oklahoma State Mosp A, 210
Pan Am Conf. of Public Health, 910
Pan Am Cong. of the Blind, 745
Pan Am Cong on the Child, 312, 993
Pan Am Cong of Ophthalmology, 61, 659
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Tuberculosis, 570
Pan Am Cong of Pathologists, 1152
Radloogical Soc of North America, 1232
Radloogical Soc of London, 679
San Francisco County V Soc, 713
Santa Clara County (Calif ) Tuberculosis A, 907
Seattle S. Soc, 549 Santa Chara County (Calif) Inductions 27, 907
Scattle S Soc. 549
Soc for the Study of Asthma & Allied Conditions, 393
Soc of University Surgs., 311
Southeastern S Cong., 746
Southern Conf. on Tomorrow's Children, 241
Southern M A, 829
Southern S A, 311
Tennessee M A, 1309
Tevas Neuropsychlattic A, 311
Texas Pediatric Soc., 156
Texas Public Health A, 529
Toronto, Acad of Med of, 61
Tri-State M A, of the Carolinas A Virginia, 992
Virginia, M Soc of, 1152
War Conf for Protection of Industrial Workers, 1307
Wayne County (Mich) M Soc. 656 1307
Wayne County (Mich.) M. Soc., 656
Western S. A., 211, 472
West Virginia State M. Soc., 211, 393
Wisconsin Heart A., 841
Wisconsin, State M. Soc. at, 311, 658, 1152
Wisconsin Trudeau Soc., 658, 1292
Women's M. A. of the City of New York, 155

Vaccine: See Paratyphold vaccine: T A B Vaccine: See Paratyphold vaccine:
Typhold vaccine
R C See Therapeutic Research Corporation
TACHYCARDIA, paroxysmal, in children
[Baker] 254—ab
paroxysmal; prognosis; quinidine to corect
attacks, 182
yarope due to treatment, [Weiss] *511
TACHYSTEROL, dinydro: See Dinydrotachysterol (cross reference)

TALCUM, glove powder causes granulomatous lesions, [By ron] 409—ab TALKING: See Speech, Voice TAMPONS, vaginal, 770 TANK: See also Cunningham Tank driver, audiogram of, [Bunch] *593 TASTE, metallic, in mouth, 935 TAX. See also under Medicolegal Abstracts at end of letter M hospitals subject to, D C., 469 income, accounts receivable for year of death, (Bureau report) 149—0S, 1474—0S income, payment by those in military service, 337—OS, 338—OS, 737 income, physicians—1942, (Bureau report) 337—OS on property and income payment by nersons

387-OS
on property and income payment by persons in service, 307
TEA in gout, 358
TEACHING. See Education, Medical
TEAR gas, (CN), sensitivity to, [Lewison] 248

TECHNICIANS: See Laboratories
Schools Approved by A M A for See
Laboratories, Occupational Therapy, Physi-

cal Therapy Terrapy Teerapy, Physical Therapy also Dentistry, Gums, Jaws caries, symposium on, New York, 1504 effect of congenital syphilis on, [Johnston] 1405—ab

1405—ab extraction, fistulous tract after and sodium sulfonamide, [Klestadt] 998—C, (reply) [Fletcher] 998—C extraction hemorrhage, coagulation globulin for [van Creveld] 1405—ab fractured, management, 494 mproperly filled causing alopecia areata, [Grace] 1406—ab rejection of Selectees, [Rowntree & others] *1226

[Grace] 1406—ab
rejection of Selectees, [Rowntree & others]
*1226
TELANGIECTASIA, hemorrhagic, hereditary,
[Raaschou] 258—ab
TELEPHONE operator, aphonia in, 857
operator, loss of hearing in, audiogram,
[Bunch] *591
TELLURITE medium for Flexner's bacillus
dysenteriae, [Wilson] 325—ab
TEUPERATURE See also Climate, Cold, Heat
effect on chorlomeningitis virus transmission
by mosquitoes, [Milzer] 1162—ab
effect on healing wounds, [Brooks] 844—ab
effect on oial mucosa, [Winslow] 1325—ab
effect on oial mucosa, [Winslow] 1325—ab
effect on plasma contamination, sulfonamide
derivatives to control, [Novak] *513
Indoor. See Air conditioning
of intravenous solution, effect of, 1340
TEUPERATURE, BODY, High See Fever
effect of renal extracts on guinea pigs,
[Zichis] 1244—ab
of patient and calculation of basal metabolism, 568
TENDONS: See also Muscles
lengthening, also transplanting, in spastic
paralysis, [Green & McDermott] *434
sheath Infections of hand, [Grodinsky] 1164
—ab
surgery, sulfanilamide locally in, promotes

sheath infections of hand, [Grodinsky] 1164
—ab
surgery, sulfanilamide locally in, promotes
healing after tenodesis, [Bick] *511
tendovaginal panaritium, [Welcker] 1260—ab
TENNESSEE, University of See University
TERATOMA See also Dermoid
adult, Aschhelm-Zondek test in diagnosis,
[Twombly & others] *106
twins, ovarian dermoids relationship, [Edmonds] 844—ab
TERMINOLOGY. See also Language, "Words
and Phrases" under Medicolegal Abstracts
at end of letter M
bronchial nomenclature, [Adams & Davenport] *111
definition of nutritional failure and malnutrition, [Jolliffe & others] *944
definition of occupational dermatosis and
of primary skin irritant, [Lane & others]
*614
drug, A M A Council consideration, 1466
—OS
lymnoma and lymphoblastoma, [Wiseman]

lymphoma and lymphoblastoma, [Wiseman]

*100
Niacin and Niacin Amide, (Council report)
819, 823—E
pronunciation of words amide, sulfanulamide
and sulfathlazole, (Council report) 378
"traumatic" surgery, [Royster] 1158—C
"ESTIS' See also Epididymitis
Hormone. See Androgens
insufficiency in aging men, 458—E
tumors, Aschleim-Zondek test in (Ferguson's
method), [Twombly & others] *106
tumors, gonadotropin in urine, [Furuhyelm]
178—ab
tumors (malignant) irradiation and orchiec-

178—ab tumors (malignant) irradiation and orchiectoms for, [Chamberlin] 1249—ab undescended, after puberty, [Rea] 1007—ab undescended, chorionic gonadotropin for, [Drake] 479—C, (reply) [Thompson & Heckel] 479—C undescended, urinary gonadotropin excretion, 458—E

TESTOSTERONE. See Androgens
TETANUS. See also Medicolegal Abstracts at
end of letter M
Antitoxin (Bovine), Gilliland, 141

-Continued

ETANUS—Continued antitoxin injection, shock 2 hours after, intravenous salt solution for, [Blotner] *219 antitoxin, trigeminal neuralgia after, [Rosenbaum] 173—ab
Fourth of July Injuries causing, *46 immunization project, Pa. 1505 puerperal, caused by inefficient steam sterilization of cotton, 242 toxoid inoculation, epidemic myositis after, [Williams] 1165—ab treatment, 6 point, [Chapman] 173—ab vaccine (associated), Ramon's new formula, 553

553
vaccine, typhold-paratyphoid vaccine, new modified, [Hallnuer] 1166—ab
TETANY, infantile, dihydrotachysterol for, [Woo] 176—ab
parathyrold, dihydrotachysterol, vitamin D or calcium for, [Sevringhaus] 1322—ab
strumlprivous transplant bone in, [Tural]

675—ab
TETRACHLORETHYLENE treatment of hookworm infection 679, [Brown] 1158—C
TETRALOGY of Fallot See Heart anomalies TETRAPLEGIA, surgical correction, [Green & McDermott] *134

TEXAS, program of indigent child care, 57

University of See University Wonder, 163—BI THECLIN See Estrone

—OS
University of See University
Wonder, 163—BI
THEDLIN See Estrone
THEOBROMINE, price fixed by O P A, 386
THEOPHYLLINE salyrgan tablet for edema,
[Borg] 1404—ab
with Ethylenediamine See Aminophylline
THERAPEUTICS See also Baths Blood
Transfusion, Diathermy Drugs, Fever,
therapeutic, Hemotherapy, Physical Theraps
app Roentgenotherapy Serum therapy
(cross reference), etc under specific substances and diseases
A M A Committee on Therapeutic Research,
report, 1491—OS
experimental, American Society for Pharmacology and, 993
graduate course in, Canada, 473
Physicians Responsibility for Treatment See
Malpractice
Therapeutic Research Corporation of Great
Britain Limited 303—E, 748
THERE is nothing physically the matter,
[Miller & Frey] 319—C
THERMO-Magnetic Cushion, 247—BI
THIAMINE HYDROCHLORIDE, alcoholic elivirs
of, not acceptable for N N R, 979
furunculosis and, 1026
N N R (tablets, solution—Flint, Eaton) 141,
(tablets, Merrell) 141
prepriations, "caution" statement for, (Council decision) 617
undesirable to add to sugar, syrups, candy
carbonated beverages, (Council report)
1409—OS
THIGH See also Buttocks, Hip
crush injury with recovery, [Maitland] 411
—ab
THINALAX, obesity nostrum, 1388—BI
THINALAX, obesity nostrum, 1388—BI

crush injury with recovery, [Mattland] 411
—ab

THINALAX, obesity nostrum, 1388—BI

THIOCYANATE, in butyl-carbitol., in kerosene for pediculosis, [MacHaffie] 1251—ab

THIONOL treatment of typhoid and dysentery carriers, [Cutting & others] *1447

THOMAS Oration See Lectures

THOMPKINS, "Rev Doc" J H, 164—BI

THORACOPLASTY See also Tuberculosis Pulmonary, surgical treatment apical, [Rossel] 849—ab

THORAX See also Pneumothorax

American Association for Thoracic Surgery (cancels meeting), 992

American College of Chest Physicians, 239

cancer, lung fibrosis after x-ray irradiation to chest, [Widmann] 1327—ab

chest sounds, 855

circumference, in index of obesity, [Behnke & others] *495, [Welham & Behnke] *498

cirsoid aneurysm of chest wall, [Eckhoff] 88
—ab

A others | *435 | (welliam & Beinnier | *435 |
—ab injuries of chest will, local anesthetic for [Harmon & others] *30 |
roentgen survers of chest in Canadian Army [Richards] 1327—ab |
surgery of chest relation to respiratory disease, [Ormerod] 257—ab |
tumor superior sulcus, [White & others **862, [Stein] 1252—ab |
THORIUM, hazard to young workers, 1373—E THREADWORN Infection See Oxyurlasis THROAT See also Larynx, Nasopharynx, Nech Otolaryngology Tonsils abscess (acute) in childhood, 4 signs treatment especially sulfanilamide, [Deering & Brennemann] *1171 |
tmmunity mechanism of, to diphtheria gravis relation of iron salt concentration, 300—E propylene giveol sulfathiazole spray, [Yonk man & others] 1317—C (correction) 1707 |
Quinsy Sore Throat See Abscess, peritonsillar sore preceding syringomethia [Roemer] *700 |
Sore the mill begre outlier! [Roemer] *700 |

«Har sore preceding syringomyelia [Roemer] *700 sore septle milk borne outbreak 1151, (cor-rection) 1210 streptococci in, [Buchbinder], *721

THROMBIN: See also Blood coagulation rabbit, as local hemostatic, [Lozner] 79—ab THROMBOANGHITIS OBLITERANS, effects of intercrupting and restoring circulation with tourniquet, [Landowne] 1253—ab in brain, [Antoni] 929—ab treatment, sodium thiosulfate and sodium tetrathionate, effect on blood oxygen, [Theis] 1256—ab THROMBOCYTES: See Blood platelets THROMBOPENIA. See Blood platelets, Purpura hemogrhapica

THROMBOPENIA. See Blood platelets, Purpura hemorrhagica
THROMBOPHLEBITIS. See also Phlebitis clot retraction time in, effect of heparin, [Hirschboeck] 1161—ab diagnosis, venographic (Bauer's method) of, [Starr & others] *1192 purperal sepsis and pulmonary embolism, 1339

septic, heparin and sulfathiazole for, [David-son] 1012—ab treatment, reactions after sulfathiazole read-ministration, [Lyons & Balberor] *955 THROMBOSIS See also Embolism, Thrombo-

CHROMBOSIS See also Embolism, Thrombophichitis
Coronary See also Arteries, coronary occlusion, Myocardium infarction
coronary, "pseudocholanglopathic" form, [Tapella] 1522—ab
coronary, sudden death in, [Baer] 248—C;
(reply use of aminophylline and atroptne)
[Le Roy & Snider] 556—C
effect of 3,3"-methylenebis (4-hydroxycoumarin) on, [Meyer & others] 1003—ab;
[Barker & others] 1003—ab
prevention, heparin, hematuria after, [Richmond] *609
renal infarction, hypertension in, [Prinzmetal
& others] *44
sagittal sinus, after childbirth, [Martin] 410
—ab

THYMOL See Tuberculosis, treatment
THYMUS relation to other endocrine glands,
HOUSSAY ON, S33
THYOGLAND Treatment, S37—BI
THYROID See also Golter, Golter, Toxic
deficiency, aspects of headaches, [Goldzicher]
486—1b

Associated, aspects of headaches, [Goldzicher]
486—ab
desiccated, in juvenile osteochondral hypothyroidism, [Schaefer] 667—ab
Evelsion See Thyroidectoms
extract in amenorrhea of diabetics not contraindicated, 1170
extract in cretinism, [DéCourt] 1336—ab
Hyperthyroidism See Hyperthyroidism
Hypothyroidism See Hypothyroidism
menstrual bleeding and, [Collins] 753—ab
surgery mortality; morbidity, [Heyd] 1163
—ab
Thyrotronic Hermone, See Note 1

Thirotropic Hormone See Pituitary
Thirotropic Hormone See Pituitary
THYROIDECTOMY cures familial periodic paralysis in toxic goiter, [Hildebrand] 753—ab in myasthenia gravis in goiter [Kowallis] 1250—ab indications in goiter, [Cottis] 562—ab mortality, [Heyd] 1163—ab postoperative parathyroid deficiency, dihydrotachysterol for, [White] #130 postoperative tetany, transplant bones in, [Turni] 675—ab subtotal, hyperthyroidism and hypertension after, [Biggrd] 1329—ab total, in pulmonary tuberculosis, [Soriano

niter, piregridj 1329—ab
total, in pulmonary tuberculosis, [Soriano
liménez] 929—ab
THYROTOXICOSIS. See Golter, Toxic
THYROTOPIC HORMONE: See Pitultary
TIBIA, fractures in adults, [Hudack] 1711—ab
surgery, plastic repair of head, [Kast] 850

TIC Douloureux See Neuralgia, trigeminal TICKS, relapsing fever in Oregon, [Davis] 86

paralysis in South Carolina, [Beach] 1014

ration of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control

Herion, sulfathizole locally for, [Robinson] 498—ab
THREDNESS See Asthenia; Fatigue, etc
TISSUE See Mucous Membranes, Skin
Deproteinated Extract: See Pancreas
TNT See Invitrololuene
TOAD venom, action on bleeding time, [Derouaus] 1166—ab
TOADSKIN: See Phrynoderma
TOADSKIN: See Phrynoderma
TOBACCO habit, Bartlett "Cures," 164—B1
habit, T M Laboratories Tobaccoline Sales
Division, 399—B1
smoking contraindicated in thromborngittis
obliterans, [Theis] 1236—ab
spinal cord lesion from, 876
TOBACCOLINE Sales Division, 399—B1
TOCOPHERIOL (Council decision), 617
TOILET serts role in gonococcic vaginitis,
[Colin] 1251—ab
soans as detergents, [Lane & Blani] 804,

[Cohn] 1251—ab soans a detergents, [Lane & Blant] 804, \$608 \$409 TOLEDO Academs of Medicine, Stamm library glien to, 192 TOLUENE, effects of industrial exposure, [Greenburg & others] \$573, [von Octtin-gen] \$579

TONSILLECTOMY for chronic tonsillitis in acute hemorrhagic nephritis, 855 hemorrhage after, gallic and tannic acids to control, 182 in allergic or hay fever patients, 420 indications, [Coates] 1013—ab poliomyelitis relation to, 980—E; [Seydell] 1330—ab pollomyelitis relation to, 980—E; [Seyden]
1330—ab
TONSILLITIS: See Tonsils, infection
TONSILLS, Abscess: See Abscess
Infection (chronic) in acute hemorrhagic
nephritis, tonsillectomy for, 855
infection, indications for tonsillectomy,
[Coates] 1013—ab
Infection preceding syringomyelia, [Roemer]
*709 TOOTH: See Teeth TORONTO, Academy of Medicine of: See Academy University of: See University TORTICOLLIS, traumatic origin, [Janek] 675 TOXOID: See Diphtheria; Gangrene, gas; Tetanus
TRACHEA, oily solutions for intratracheal injections, 680
TRACHEOBIONCHITIS in childhood, [Diamond & Van Loon] *771
TRACHOMA in New Zealand Maori, 995
treatment, sulfanilic acid, [Cosgrove] 1412 -ab TRADE Hazard, Poisoning, etc.: See Industral Diseases; Industrial Health; etc.
TRAFFIC Accidents: See Automobiles, accidents
officers, carbon monoxide exposure to, [Sievers & others] *585
TRAINING Camps: See Medicine and the War TRAINS: See Railroads Blood Transfusion ice Bones; Tendons ee Automobiles; Avia-See Ambulance idents; Wounds; Medi-end of letter M; under liseases and diabetes, 261 and diabetes, 261
Athletic Injuries: See Athletics
Bombs Causing: See Ath Raids; World War II
crush syndrome with renal failure from fallen
debris, [Maitland] 411—ab; 911; 1311
Electric: See Electric Injuries
Fireworks Causing: See Fireworks
Industrial: See Industrial Accident; Workmen's Compensation
Nonpenetrating: See Abdomen
Nonpenetrating: See Abdomen

Royster] 1158—C
apeutics
fibrillation [de Jong I to carbon monoxide, 85 in stomach, 262 TRICHINOSIS in interned Germans, 910 TRICHOPHYTON Infection: See Dermatophy-TRICHINOSIS in interned Germans, 910
TRICHOPHYTON Infection: See Dermatophytosis
TRINITROTOLIFNE: See trinitrotoluene
ICOVICAL With INI. American Academy of,
Gorgas Memorial Institute of, 393
instruction in, for Army officers, 1458
research, Finlay Institute established at U. of
Havana, 230—E; (correction) 473
School of: See University of Puerto Rico
TROPICS, hay fever in, especially Java, (Ter
Heege] 258—ab
white man in, Australia, 995
TROTTER, WILFRED, theory (1916) of herd
Instinct as applied to Germany, 62
TRUNCUS arteriosus communis persistens,
[Lev] 1255—ab
TRU-Science, 1241—Bl
TUBE, Miller-Abbott: See Miller-Abbott Tube
TUBERCLE BACILLUS, dissemination from
fresh necropsy material, [Stoan] 1412—ab
TUBERCULIN tests for militia, 914
tests in corneal opacities in children, Alaska,
338
tests, positive or negative more desirable? tests, positive or negative more desirable?

[Mayer & Rappaport] *1179
tosic syndrome of ocular tuberculosis, [Charlin] 921—ab
TUBERCULOMA of hypophysis, [Kirshbaum]
671—ab 671-ab TUBERCULOSILICOSIS: See Pneumoconiosis

TUBERCULOSIS: See also Tuberculosis, Pul-monary; and under names of specific dis-eases and organs ening of civilians. ' ny: 14 by 17 inch case finding in Rhode Island schools, [Shields] 404—ab case finding, sources of infection, [Harmon] 668—ab 668--ab conference on, N. Y., 657 control, (first certificate in, Minn.) 154; (new director: Dr. Steinkopff, Illinois) 238 Diagnosis: See also Tuberculosis, case find-Diagnosis: See also Tuberculosis, case finding diagnosis, examinations by Detroit Department of Health, \$27-08 diagnosis, reentgen, of primary infection, [Birkelo] *350 healthmobile dedicated, 310; 1380 hospitals, statistics, *1062 in Army in World War I and present mobil-leation, [Pollock] 668-ab [16 Germany under Hitler's rule, 1382] in high school students, [Nevius] 1255-ab in industry, Saranac Lake symposium, [Gardner] 642-ab [16 Mexico, 1384] in Mexico, 1384 in racial groups in Southwest, [Dublin] 1328 In racial groups in Southwest, 1900ma, 1020—ab
in selectees, rejection for service, 1147;
[Rowntree] *1226
increase, England, 242; 832
increase, England, 242; 832
increase, in defense industries from war conditions, 61
Mississippi Valley Conference on, 745
mortality and incidence, world wide, 1313
mortality in Switzerland, 661
mucous membrane, vitamin C for, [Bogen] mucous membrane, vitamin C for, [Bogen]
405—ab
National Committee, Argentina, 1310
National Tuberculosis Association, 1153
nostrum: Bumpass Medicine Co., 399—BI
nostrum: Emile Carpentier, 837—BI
nostrum: T. J. Hutton, M.D., 1513—BI
Pan American Congress of, 550
primary, of adults, [Bernoulli] 849—ab
primary, or reinfection type in young adults,
[Mayer & Rappaport] *1179
rehabilitation of patients, 1313
school for, Chicago, 828
syringomyella preceded by, [Roemer] *709
treatment, thymol, [Searcy] 1247—ab
unit (new) at U. of Georgia, 334—SS
Wisconsin Trudeau Society, 658
TUBERCULOSIS, PULMONARY, anesthesia
(ether) in presence of, [Beecher & Adams] membrane, vitamin C for, [Bogen] mucous (ether) in presence of, [Beecher & Adams] artificial pneumothorax complicating asthma, artificial pneumothorax, dangers of air travel vs. barometric pressure, [Lovelace & Hinshaw] *1275 artificial pneumothorax, effect of war conditions on treated patients, [Kellerman] 489—26 ditions on treated patients, [Kellerman]
489-ab
Case Finding: See Tuberculosis
cavernous, conservative treatment and pneumothorax in, [Cold] 414-ab
cavities, Monaldi's suction drainage, [Schuberth] 1417-ab
clinical inclplence, from what point should
one date? [Mayer & Rappaport] *1181
destructive, relation to primary infection,
[Isager] 414-ab
diagnosis, fluoroscopic, [Garland] 1328-ab
diagnosis, roentgen 3 low cost methods, [Mercer] 497-ab
epituberculosis, [Westermark] 90-ab diagnosis, roenigen 3 tow cost methods, [Mercer] 407—ab epituberculosis, [Westermark] 90—ab in services, [Aspin] 563—ab nostrum: D. H. Brown fraud, 838—BI surgical treatment, [Adams] 84—ab surgical treatment, bilateral collapse, [Meltzer] 924—ab surgical treatment, intrapleural pneumonolysis to prevent bilateralization, [Pardellas] 1335—ab 10 prevent bilateralization, [Pardellas] 1335—ab
surgical treatment, thoracoplasty, [Skinner]
84—ab; (apical) [Rossel] \$49—ab; [Edwards] 1521—ab
surgical treatment, total thyroidectomy, [Soriano Ilménez] 923—ab
treatment, sulfanliamide; sulfapyridine, [Nilsson] \$30—ab
TUFTS Medical College, (Bingham Associates
Fund gift to) 239; (goes on 12 month basis)
333—SS; (alumni association) 908; (Hayden scholars) 1021—SS
TULAREMIA, from wild vs. tame rabbits, 420
pulmonary, 3 cases, [Kennedy] *781
treatment, acriffavine, [Loria] \$42—ab
TUMOR: See also under names of specific
organs and types of tumors
American Association for Study of Neoplastic
Diseases, meeting, 1381
Dermold: See Dermold
Ewing's (endothellial myeloma), gradation of,
[Campbell] 171—ab
Malignant: See Cancer; Sarcoma; etc.
Melastases: See Medulloblastoma
TUNICA vasculosa lentis behind each crystalline
lens, 736—E

TURKEYS, acute diarrheal disease, [Mosher]

1013—ab
origin of acute anterior poliomyelitis, [Prelouil 490—ab
TURNIPS, juice of, vitamin C in, [Mottram]
411—ab
TWINS, do double-yolked hen's ergs hatch as two living normal chicks, 682
relationship to teratomas and orarian dermolds, [Edmonds] 844—ab
TYMPANIC Membrane: See Ear
TYPHOID: See also Paratyphoid
carrier found (sixth), Wyoming, 831
carrier operates food store, New York, 744
carrier problem, at Manteno State Hospital, iodophthalein, sulfaguandidine or cholecistectomy for, [Saphir & others] *964
carriers, report of, New York, 637
carriers, thionol, phenothiazine, solube iodophthalein, sulfaguandidine or sulfadiazine
for, [Cutting & others] *1447
in large cities of U. S., *222
in switzerland, 662
In the South; Mississippi vs. Connecticut,
[Whitfield] 839—C
outbreak, meat borne, [Duff] 1519—ab
vaccination, (active) single dose, [Leon]
1418—ab
vaccination in the army, history of; on
voluntary basis since 1999, 349—ab
vaccination of civilians, 337
vaccination of civilians, 337
vaccination of civilians, 337
vaccination of civilians, 337
vaccination of civilians, 337
vaccination of civilians, 337
vaccine of the state of antibodies -ab vaccination of civilians, 337 vaccine, febrile destruction of antibodies, 1371-E vaccine (4 diseases combined); Ramon's new formula, 553 formula, 553
raccine, oral, Council decision, 616
raccine (T. A. B.), epidemic myositis in Royal
Air Force after, [Williams] 1165—ab
raccine (3 diseases combined), [Hallauer]
1166—ab 1166—ab

TYPHUS carrier rats (5) trapped, 655
exanthematic and endemic type similar in
laboratory workers, [Findlay] 1165—ab
in Brazil identical with Rocky Mountain
spotted fever, 159
louse borne, precautions against, 832
ravaging a large part of Europe, precautions
taken against, 1312; 1362
treatment, serum, [Durand] 411—ab

'r Letter No. 3) 385
it for, [Thaihimer 3)
TYPOCHINE antisentic value. [Robinson] 1255 TYROCIDINE antiseptic value, [Robinson] 1255—ab; [Herrell] 1401—ab
TYROSINASE reduces blood pressure, 899—E
TYROTHRICIN, antiseptic value, [Robinson] 1255—ab; [Herrell] 1401—ab U. S. P.: See Pharmacopeia, U. S.
ULCERS: See also Abscess; Colitis, ulcerative;
Intestines; Peptic Ulcer; Pyoderma
Hunner: See Bladder
streptococcus (chronic hemolytic) of extremities; sulfanliamide orally, [Taylor] *1196
tropical, potassium arsenite solution (Fowler's
solution) for, [de Castro] 176-ab
Varicose: See Varicose Veins
ULTRAYIOLET RAYS: See also Light, sensitivity to tivity to burns of eye, 1264 disinfection of air, lamps for, (Council report), 298; 1468—OS disinfection of air to control common colds, disinfection of air to control epidemics in schools, [Wells] 1326—ab disinfection to control air borne infection, [Buchbinder] *727; 734—E Lamps: See also Sunlamps lamps, Aloc Cold Ray Quartz, 978 lamps substitute for sunshine in men working 7 days a week, 768 ULTRAVIRUS: See Virus vlostomiasis Students; etc.: See Medical; Schools, dents, Medical; University

UNDERNOURISHED: See Nutrition
UNDULANT FEVER: See Brucellods
UNEMPLOYED compensation benefits, A. M.
A. Board of Trustees viewpoint on, \$20—E:
1478—0S: 1482—0S

UNITED STATES: See also American: Federal
Army: See Army: Medicine and the War
Bonds: See Defense bonds, stamps
Bureau of Mines: See Mines
Children's Bureau: See under Children
citizenship and commission in Army and
Navy, 634

Citizenship Requirement: See Licensure
Civil Service Commission (examination for
student dietitians) 312: (orthopedic mechanic onen) 541; (physical examination
under) [Harvey] *567; (recommends the
qualified persons) 632; (recommends the
rollment) 1221; (scope; positions of n)
[Harvey] *1221

UNITED STATES—Continued
Department of Justice Indictment: See
American Medical Association; National
Wholesale Druggists

Employees' Compensation Act and chiropractors, 1478—OS
Food and Drug Administration: See Food

Food and Drug Administration: See Food government agencies. A. A. a cooperation with 1474—OS, 1485—OS government grants, (to Medical College of Virginia) 60, (for community expansion and improvement program) 394; (to assist hospital expansion) 550, 659, (to colleges) [Viunto] *1030

(Munto) *1030 Goternment Positions Open for Physicians See Physicians, positions open for Hospitals Building by: See Hospitals build-ing by; Hospitals, government; etc Japanese War. See World War, Pacific front Laws and Legislation. See Laws and Legis-

Laws and Legislation. See Laws and Legislation
Navy See Medicine and the War, Navy
Office of Education cooperates with A M A
on packets for consumer education, 906—08
Pharmacopeia. See Pharmacopeia, U S
Public Health Service See Health
Social Security Act: See Social Security
Veterans Administration See Veterans Administration

Veterans Administration See Veterans Administration
UNIVERSITY See also Education, Medical,
Schools, Medical, under names of specific
universities as Bowman Gray; Columbia,
Harvard; Northwestern, Stanford; Yale, etc

etc
federal aid, war and, [Munro] *1030
of Buenos Aires, news of, 160
of California, (research laboratory in ophthalmology) 153, (courses in pediatrics) 391,
'(lectures to students on war medicine)
1021—SS, (inoculation of complex influenza
A distemper vaccine) [Brown] 324—ab,
U. S Government finances research, 1378
of Chlegor (unpulsa research)

of Chicago, (appoints research committee on cancer), 238, (elective course in endocrincancer), 23: ology) 743

Cincinnati, (instruction in chemical warfare) 1304

fare) 1304
of Edinburgh, (Polish Faculty of Medicine)
313; (Polish graduates) 659
of Georgia, (new tuberculosis unit) 334—SS,
(dropped from A M A. approved list) 751,
(grants to) 1378
of Havana, Finlay Institute, 230—E; (correction) 473

of Louisville, (Ephraim McDowell Lecture)

1022—SS
of Maryland, (Student Council) 333—SS
of Minnesota, (descriptive account; Illustration) 331—SS, (goes on 12 month basis)
761—SS; (grants to) 829; (Hospital Unit
on active duty) 987 (courses on Kenny
treatment) 1310, 1379
of North Carolina, (Alpha Epsilon Delta)
334—SS

of Oklahoma, (first aid courses compulsory)

762—SS

of Pennsylvania, (Undergraduate Medical Association) 1021—SS

sociation) 1021—SS
of Pittsburgh, (medical students teach in defense program) 760—SS
of Puerto Rico, School of Tropical Medicine, 1381

of Tennessee, (Phi Beta Pi) 1021—SS of Texas, (new depts added) 549, (Phi Rho Sigma lectures) 764—SS, 1021—SS; (Med-leal_Branch—A V.A. Council report) 1148

-0S of Toronto (establishes Institute of Physiol

og3) 746 Professorship See Professorship

Professorship See Professorship Students See Students; Students, Medical Surgeons, Society of, 311 UPDEGRAFF, HOWARD L, bequeaths library on plastic surgery, 547 UPJOHN Bismuth Ethylcamphorate, 896; 979 UPJOHN Bismuth Ethylcamphorate, 896; 979

UREA and sulfonamide urolithiasis, [Sobin]
1324—ab
in Blood See Blood

in Blood See Blood nitrogen, syntheses by bacteria in intestine, 1219—E

UREMIA in nephritis, [Murphy & Peters] *185

URETERS, obstructing lesions cause chronic nephritis, [McDonald & Ballenger] 998—C. (repls) [Murphy] 998—C

pyoureter 17 years after nephrectomy, ureter stump contained calculus, [Davison] *137

URETHRA, dilation for enuresis, [Winsbury-White] 672—ab

Gonorrhea See Gonorrhea

URIC ACID in spinal fluid, [Baptista dos Reis] 736—ab

URIVARY SYSTEM See also Bladder, Genitourinary System, Kidneys, Ureters, Ureters

tara (calculi (renal) caused by sulfonamides, 1263, [Sobin] 1324—ab; [Winsor & Burch] *1346 calculi vs sodium bicarbonate therapy in fastric ulcer, 1422 infections, recognition in diabetics [Harrison & Balley] *19

URINARY SYSTEM—Continued lesions (unilateral) of upper, juvenile hypertension with, [Powers & Murray] *600 Roentgenography See Lrography URINE, Addis count in acute nephritis, [Murphy & Peters] *183, (correction) 312 Addis count, routine analysis and blood sedimentation rate compared, [Rubin] 1254—16 Albumin in See Albuminuria alkaline to prevent reni sulfathizole complications, [Winsor & Burch] *1346 arsenic in, of unexposed persons, [Webster] 86—ab

arsenic in, of the posed persons, (websier) 86—ab
Bacteria in See Bacteriuria
Blood in See Hematuria
calcium, androgens and estrogens vs. in mam-

mary center, [Farrow & Woodard] **339 color test of surgical petient's ability to digest food [Golden] 404—ab extracts, effect on peptic ulcer, [Sandweiss] 168—ab

Globulin in See Albuminuria gonadotropins (chorionic) in, in testis tumors [Twombly & others) *106 [Freruhjelm] 178—7b

178—1b
gonadotropins in, in climacteric in aging men
vs menopause in women, 458—E
hippuric acid in technic for, [von Oettingen
& others] *583
incontinence in fibrosis and submucous calclification of vesical neck [Fister] *604
incontinence, urethral dilation for, [Winsbury-White] 672—ab
hetosteroid assay in Summonds' disease or
panhypopitultarism, [Fraser] 1165—ab
lead in, of unexposed persons, [Webster] 86
—ab

nicotinic acid in, test for, [Perlzweig & oth-

nicotinic acia in, test tot, [12.5]
ers] *28
trinitrotoluene in, improved Webster test for
[Ingham] 848—ab
of Pregnant See Pregnancy urine
oliquita with hyposthenuria, [Nonnenbruch]

850-ab

850—ab phosphorus, effects of aluminum hydroxide, [Freeman] 838—C Porphyria in See Porphyria Protein in See Albuminuria silver not excreted in, [Aub & Fairhall] 319
—C

Sugar in. See Diabetes Mellitus; Glycosuria sulfates in, effect of toluene inhalation vs benzene exposure, [von Oettingen & others] *384

*534
suppression after rectal surgery, action of furmethide, [Lipton] 1517—ab suppression, anurla, [McClelland] 170—ab suppression, anurla after transfusing con served blood, [Brunner] 178—ab volume-urea-chloride relationship in Addison's disease, [Kepler] 1404—ab URLANO, Relivo Products Co, 1513—BI URGEFUTAL, SYSTEM See Gentlourinary

URLAXO, Relivo Products Co., 1513—BI
UROGENITAL SYSTEM See Genitourinary
System. Urmary System
UROGRAPHY, excretory, death after diodrast
intravenously, [Goldburgh & Baer] *1051
URTICARIA possible from solvent, 1169
UTENSILS See Cooking and Eating Utensils
UTERUS See also Oviducts, Placenta
arcuatus, [Falls] *206
cancer (cervical) diagnosis Schiller's test,
colposcope, biopsy, etc [Morton] *271
cancer (cervical), hysterectomy or radium for,
5 year survival rates [Morton] *271
cancer (cervical) incurable, care of patients
[Rousseau] 1331—ab
cancer (cervical) inducing pneumoperatoneum
to aid pelvic irradiation, [Sante] 493—th
cancer (cervical) metastatic, [Martin] 843
—ab
cancer (cervical), radiotherapy, [Brouha]

(cervical), radiotherapy, [Brouha] 1334—ab

cancer (cervical) syphilis effect on, [Harding] 1408—ab

ing] 1408—ab cancer, control, progress report, [Macfarlane] 405—ab excision, anhydrohydroxyprogesterone after, [Wenner] 176—ab fetus still in after bleeding and cervical dilatation, 681 fibroids gonadotropin intramuscularly effect on, [Brewer & others] *278 fibroids with pregnancs, [Thompson] 87—ab Hemorrhage, functional bleeding See Men struation, disorders hemorrhage, postmenopausal, [Geiger] 406

hemorrhage, postmenopausal, [Gelger] 406

memorrhage, postmenopausal induced by estro-gen therapy, [Bennett & Te Linde] *1344 Mucosa See Endometriosis Pregnanc operation, Pragnacia and metalogical for

Pregnant See Endometriosis
Pregnant See Pregnancy
prolapse operation, permeal endometriosis im
plantation in, [Fessing] 852—ab
rupture, in cesarean section, [Falls] *204
UVURSIN, 247—BI

VACCINATION See also Immunization, under names of specific diseases as Smallpox, Typhoid, Whooping Cough Circular letter No 3, 385

VACCINATION—Continued
Combined See Diphtheria; Paratyphold;
Tetanus; Typhold
VACCINE: See also Influenza; Typhold, Vaccination

Vaccination combined (4 diseases), 553 combined (4 diseases), 553 combined (3 diseases), [Hallauer] 1166—ab Commonwealth Serum Laboratories, 913 for chronic sinusitis, 494 mixed, treatment of dyshidrosis, [Dósa] 412—ab

mived, treatment of availables, [1963] 3.1—ab
VACOLITE Model D Hearing Aid, 896
VAGINA, routine flushing with silver solutions
in newborn, [Notes] 1317—C
smear determination in estrogen therapy,
[Bennett & Te Linde] *1344
tampons, 770
VAGINITIS, Gonococcic See Gonorther
treatment, estrogens [Arenas] 1417—ab
VALERIVS Hair Grower, 164—BI
VALLERIVS Hair Grower, 164—BI
VALLERIVS Fee See Coccidioidosis
VANDERBILT University, (goes on 12 month
basis) 761—SS
VAN PERNIS-Benson-Holinger skin test for
histoplasmosis, [Henderson & others) *889
VARGAS, LUTHERO, 550
VARICOSE VEINS relation to military service,

VARGAS, LUTHERO, 550

VARGAS, LUTHERO, 550

VARICOSE VEINS relation to military service, 1146, [Rowntree] *1226

treatment, injection, fatal pulmonary embolism, [Vaughn & Lees] *1293

treatment, prevention of discomfort and disability in, [Brunstein] 404—ab

VARIOLA See Smallpox

VARIOLA See Smallpox

VASOMOTOR SYSTEM reactions to mapharsen, [Levin & Keddie] *369

symptoms in climateric in aging men vs menopause in women, 458—E

VEGETABLES See under names of vegetables as Broccoll Cabbage, Turnips

"VEGETRATE" Products, 164—BI

VEINS: See also Blood Vessels cardiac (great), ligation for angina pectoris, [Fauteux] 170—ab femoral, division to prevent pulmonary embolism, [Fine] 253—ab Inflammation See Philoitis; Thrombophilebitis

phlebitis

philebitis
Injection into See Injection, intravenous
Pressure in See Blood Pressure
Scierosis See Phieboscierosis
Varicose See Varicose Veins
venographic diagnosis (Bauer's method) of
thrombophilebitis, [Starr & others] *1192

venographic diagnosis (Bauer's method) of thrombohilebitis, [Starr & others] *1192 VENDOL, 163—BI
VENDOL, 163—BI
VENEREAL DISEASE: See also Gonorthea; Lymphogranuloma Venereum; Social Hyglene, Syphilis control, (director Dr Gordon, Ohlo) 471; (first control officer Dr. Upshur) 993 control officers among American troops, 824 forum on, N Y., 657 in Netherland East Indies, [Simons] 326—ab incidence, South America, 397 increases in U S Army, 824 premarital examination laws in U.S., [Forster & Shaughnessy] *700 problem in war, 1370—E rejection of selectees, [Rowntree & others] *1224, *1226 reporting registrants with, 1304 VENEREAL DISFASES FOR THE PRACTITIONER, New York City, 744 VENEREAL WART. See Condyloma acuminatum VENESECTION for erythrema, [Holbrook] 171

VENESECTION for erythrema, [Holbrook] 171

—ab
VENOGRAPHY See Veins
VENOM See Tood
VENTILATION See Air conditioning
VERNES' test for syphilis, 682
VERNONITE, toxicity to, 1169
VERRUCA accuminata See Condyloma acuminatum

ntum VERTEBRAE See Spine

VERTIGO See also Syncope
aural, Ménière's disease, histamine therapy,
[Monteiro] 1016—ab
aur 1 Menière's disease, treatment, [Weiss]
*530

aural, Minière's disease, will pregnancy have detrimental effect on 182 eustachian tube obstruction causing, [Merica]

*1292
treatment, [Welss] *529
VETERANS ADMINISTRATION, positions open,
[Harrey] *1222
hospital facilities 1477—08
VETERINARIANS deferment of, 462
Procurement and Assignment Service for, 625
VI antigen, paratylpiold B, [Anzai] 851—ab
VI-MIN-EN, 247—BI

VINYON, synthetic, as surgical suture, [Narat] 488-ab

VIOFORM, N. N. R., (tablets-Clba) 1217
VIRGINIA Medical Monthly See Journals
VIRUS See also under numes of specific discases as Conjunctivitis Influenza; Preumonia, Pollomyclitis; etc.
culture in duck, eggs. [Gispen] 414—ab.
culture of ultravirus [Hauduroy] 1235—ab.
isolation in Impeliogranuloma venereum,
[Palmer & others] *517.537—E.
neurotrople diseases Commission on, 461

VIRUS-Continued neurotropic, diseases, laboratory aids in diagnosis, 55
neurotropic, infections, complement fixation nosis, 55
neurotropic, infections, complement fixation
test in diagnosis, [Casals] 255—ab
17 D. in yellow fever immunization, [Soper] size and visibility of filtrable bodies, [Coles]

size and visibility of filtrable bodies, [Coles] 326—ab VISION: See also Eyes, Glasses; Ophthalmology alcohol effect on, [Newman] 252—ab cloudiness of, from pilocarpine or physostigmine, 679 Color: See Color Blindness Correct Sight Club, 318—BI Dark Adaptation See Eyes, accommodation defects, correcting, [Snell & others] *612 defects, waiver for limited service officers, 1146

defects, waiver for limited service officers, 1146
Loss of See Blindness
performance in various jobs, basic elements, [Snell & others] *611
testing, Snellen's test vs Jaeger series, 1170
tests in industrial placement, [Tiffin] 651—ab
VISUAL EDUCATION department at Northwestern U (Schweppe Fund), 332—SS
VITAL CAPACITY of healthy men, [Behnke & others] *495, [Wehlam & Behnke] *498
VITAL STATISTICS See also Population
birth rate, birth control clinic attendance
effect on, [Stix] *283
birth rate, Mevico, 476
commission to study, U. S, 550
Death Rate See also Accidents Deaths, Infants, mortality, Life expectancy, Mateinity, nortality, under names of specific disease
death rate, estimate of men killed in present
war, 542
death rate, New York low record, 240
death rate record for 1941, 546—OS
death rates, 3 principal causes, 1922 vs 1938,
Mevico, 476
demographic census, Brazil, 552
morbidity, England, 1383, 1508
morbidity, Germany, 1382, (1931 vs 1941)
1383
morbidity, U. S. Army, 1382, 1456

motbidity, Germany, 1382, (1931 vs 1941)
1383
morbidity, U S Army, 1382, 1456
morbidity, Uruguay, 834
of Japan, 546—OS
of North Carolina, 909
U S Division of, changes in, 832
VITALLIUM plates to repair skull defects,
[Beck] *798
use in surgery, especially cup arthroplasty,
[Cole] 672—ab
VITAMINS, assimilation affected by alcoholic
apéritifs and liquors, 553
Deficiencies See also under names of specific
vitamins

vitamins deficiencies disease, and Trinidad. es e

Altamins
deficiencies and eye disease, Trinidad,
[Metivier] 252—ab
deficiencies "egg white injury" blotin cures,
[Sydenstricker & others] *1199
deficiencies in food rations, France, 475
deficiencies, prevalence of malnutrition.
[Jolliffe & others] *944
Foodev, 1450
for gray hair, 302—E
fortification of foods, Council report, 1469—OS
indiscriminate administration to workers in
industry, [Council report] *618, 623—S,
(discussion) 652—ab
multiple dosage forms of Council accepted
preparations, (Council decision) 617
substitute for sunshine in men working 7
days a week, 768
synthesis by intestinal bacteria, 1219—E
synthetic, are they satisfactory? 833
therapy, mived, question of Council report,
1469—OS

synthe. therapy, mo 1469—OS ph

1469—OS
therapy plus estrogens for hypo-ovarianism,
[Byrne] 1411—ab
therapy plus hydration for alcoholic encephalopathia syndrome, [Joiliffe] 1248—ab
VITAMIN A, addition to oleomargarine, Council
report, 1469—OS
A blended oil containing, N N R, 1216
deficiency, [Joiliffe & others] *949
deficiency and nervous system, [Wolbach]
253—ab

deficiency, corneal opacities of children in Alaska, 338

Alaska, 338
deficiency, detection of early ocular changes
in, 54—E
deficiency in liver disease, [Wohl] 667—ab
effect on dark adaptation, [Yudkin] 1521—ab
in liver of large sharklike fish, 159
level in blood, relation to dark adaptation,
[Lewis] 841—ab
treatment of chronic hypertension, [Govea]

1418--ab

1418—ab
treatment of rheumatoid arthritis, 493
VITAMIN B COMPLEX, added to sugar, syrups,
candy, carbonated beverages undesirable,
Council report, 1469—OS
deficiency and excessive sugar consumption,
[Guy] 1158—C
effect on senile patients, [Stephenson] 1333
—ab

-ab for gray hair, 302—E Mead Johnson & Company Award, 1153 preparations, acceptance of, (Council de-cision) 616

VITAMIN B COMPLEX.—Continued studies in dogs, [Fouts] 1002—ab research wins Chandler Medal, 60 treatment of nutritional anemia, [Moore] 1161—ab treatment of rheumatoid arthritis, 493 treatment of vulvar dermatoses, [Hesseltine]

treatment of Wernicke syndrome, [Wortis]

1407—ab See also Acid, nicotinic, Thiamine Hidro-Bı

chloride chloride
B1 deficiency, effect on gastrointestinal tract,
 [Gershon-Cohen] 1249—ab
B2 See also Riboflavin
B2 treatment of rheumatoid arthritis, 493
B3 See Pyridovine
VITAMINS C See also Acid, ascorbic, Scury,

TTAMINS C See also Acid, ascorbic, Scuriy currant purse as source of, [Mottram] 411—ab, [Pajne] 927—ab, 1383 determination (rapid) with Rotter's intradermat test, [Doile] 850—ab effect on dark adaptation, [Yudkin] 1521—ab effect on dark adaptation, [Yudkin] 1521

effect on diurests, [Joao Marques] 1336—ab effect on sentle patients, [Stephenson] 1333—ab

role in delayed wound healing, [Rhoads &

role in delayed wound healing, [Rhoads & others] \$\pm21\$ treatment of malignant diphtheria, [Behr] \$413—ab\$ treatment of mucous membrane tuberculosis, [Bogen] \$405—ab\$ treatment of rheumatoid arthritis, \$493\$ turnip juice source of, [Mottram] \$411—ab\$ undersaturation, [Jolliffe & others] \$949\$ VITAMINS D See also Cod Liver Oil Rickets added to cereals and milk, Council report, \$1469—OS\$ added to margarine to be doubled \$1234\$

added to margarine to be doubled, 1234 blended oil containing, N N R, 1216 requirement, France, 475 treatment of parathyroid tetanus, [Sevringhaus] 1322—ab treatment of rheumatoid arthritis, 493 D2 preparations, large doses of, in hypoparathyroidism (Council decision) 617 VITAMINS E international standard, 158 neivous diseases and [Harrey] 1008—ab tocopherol, (Council decision) 617 treatment of multiple sclerosis, [Meller] 923—ab

treatment of neuromuscular disorders with alpha-tocopherol, [DeJong] 484—ab treatment of rheumatoid arthritis, 493 use of, tocopherols dosage, 94 VITAMINS G See Vitamins B2 VITAMINS H identical with blotin, [Syden stricker & others] *1199 VITAMINS K See also Menadione administration to newborn, [Sanford & others] *677, (replies) [Quick] 999—C, [Kugelmass] 1389—C, [Waddell] 1389—C administration to newborn, [Rouhunkoski] \$552

852

s52
effect of 3, 3-methylenebis (4-hydroxycoumarin) on blood coagulation, [Meyer & others] 1003—ab, [Barker & others] 1003—ab, effect of 2 methyl 1, naphthohydroquinone diphosphoric acid ester, [Davison] 1413—ab Prothrombin Determination Deficiency See Blood coagulation

response to as liver function test, [Kark] 1257-ab syntheses by bacteria in intestine, 1219-

syntheses by bacteria in intestine, 1225—124 treatment of nonhemorrhagic diseases, [Rawls] 734—ab

VOCAL CORDS. See also Voice
paralysis, dihydrotachysterol for, [White]

***136** paralysis, preoperative, significance in thyrold

paralysis, preoperative, significance in thyroid disease, [Davis] 925—ab VOCATIONAL rehabilitation committee, 157 training, medical aspects, [Sawyer] 641—ab VOICE See also Vocal Cords dynamics and ethmosphenoidal epiglottidean syndrome, [Felderman] 81—ab loss of, in telephone operators, 857 VOMITING: See also Seasickness, Nausea estroren treatment relation to, [Greene] 171—ab

ab.

of Pregnancy See Pregnancy postunesthetic, incidence of, [Davies] 489 -ab

-ab
VULVA, cancer of, [Taussig] 845-ab
dermatosis, vitamin B complex theraps, [Hesselline] 80-ab
flushing with silver solutions in newborn,
[Notes] 1317-C
Pruritus See Pruritus
VULVOVAGINITIS, gonorrheal See Gonorrhea

WA-HOO BITTERS, 164—BI
WAKELEY, C. P. G., succeeds He3 Groses as
editor of British Journal of Surgery, 552
WALKING See Claudication, intermittent
WAR. See also Chinese-Japanese War, Civil
War; World War I, World War II
Air Raids See Air Raids
anesthesia (wartime), [Phillips] 409—ab
body anatomic and the body politic, 790—ab

WAR—Continued
Bombing. See Air Raids; Blast
conditions, effect on pneumothorax treated
patients, [Kellerman] 489—ab
Gases' See Gas warfare
Japanese: See under World War II, Pacific
Front marriages, 653-08

marriages, 503-08
Medical Service See Medicine and the War;
World War, 1939War Medicine See Journals
Wounded, Wounds. See World War II
WARNER, M. M., Executive Sales Corporation,
837-BI

WARNER, M. A., Essandaria Saraman Marner, William R. & Co., Inc., research grants by, 1232
WART, Venereal: See Condyloma acuminatum WASH basins, bacterial contamination in operating rooms, [Poppe] 1007—ab
WASHINGTON Health Research Laboratories,

University: See also George Washington Lui-

versity
University, (military service and physiology department) 332—SS, (Dr. Terry to retin) 

333—SS
WASSERMANN TEST, reactivation of, in cerbrospinal fluid, [Fellet] 412—ab
positive in husband and negative in wife;
prophylactic treatment in pregnancy ad
vised 7 1422

WATCH dial painting, hazard to young workers, 1373-E

WATCH dial painting, hazard to young workers, 1373—E
WATCHMAKER, infectious polyneuritis in, 1526
WATCHMAKER, infectious polyneuritis in, 1526
WATER See also Steam
action on skin, [Lane & Blank] *812
bacterial contamination of wash basin in
operating rooms, [Poppe] 1007—1b
Closet See Tollet seat
cutaneous detergents, [Lane & Blank] *807
emulsions, dust laying oils in, for bedelothes,
[van den Ende] 1416—ab
immersion foot, [Greene] 1257—ab
maximum amount of, in treatment of acid
burns, 935
Metabolism See Dehydration, Hydration
Mineral See Health resorts; Mineral Water

supply, coordinators named to protect, lilinois, 1230

supply, coordinators named to protect, Illinols, 1230
supply, protection of, New York State, 1357
Therapeutic Use See Baths; Hydrotherapy woman covered with gold, death due to interference with loss of water from shin, 508
WATT, ROBERT (1774-1819) compiled Biblio Theca Britannica, 1022—SS
WAYNE University, (check on eating habits of students) 330—SS, (Angus McLean Award) 334—SS, (defense projects, index on military medicine) 542, (defense stamp favors for student war activities) 762—SS, (chaliman of student war activities) 762—SS, (Alpha Omega Alpha) 1022—SS, (blood donor days) 1305, (teachers of air wardins) 1305, (safet) measures) 1376
WEATHER and rheumatism, 567
WEBSTER test, improved, for trinitrotoluene in urthe, [ingham] 348—ab
WEIGHT See Body weight; Obesity
WEIGHTS and measures, table for converting grains into Gm or Ce, [Anderson] 999—C
WEIL'S Disease. See Jaundice, spirochetal
WEISKOTTEN, HERMAN G, succeeds Dr
Cutter as secretary to Council, 900—E, 906, 1148—OS
WEISS, SOMA, Council tribute to, 1369

1148-OS
WEISS, SOMA, Council tribute to, 1369
WEICH, WILLIAM H, memorial fellowship,
Rockefeller Foundation gift for, 1310
WELFARE See Children, Infants, welfare;
Public Welfare, Social security
WELLCOME Prize See Prizes
WELLS FRED, abortionist convicted, Minn,

WERNER'S Syndrome, [Oppenheimer] 271-ab WERNICKE'S Diseast hemorrhagic WEST, OLIN, service in war effort, 1485-08 WEST Disinfecting Compun; sun screen olnt-mont 769

WEST Disinfecting Company sun screen oment, 769
WESTERN Electric 4C Audiometer, 1297
Reserve University (goes on continuous session plan), 761—SS
Surgical Association, (election) 241, 472 westzel Grid See Grid
WHEAT See also Bread, Cereals, Hour germ oil therapy of neuromuscular and mus cular disorders, [DeJong] 484—all WHITE man in the tropics, Australia, 905
WHITEHDAD, RALPH M, ship's doctor micsing, 1151

whitelian, ranger at, and a down ing, 1151
WHOOPING COUGH, vaccination, Hevers, [Argudin Garcia] 1260—ab vaccination (combined) with diphtheria, New Jerses, 1308
WILLIAMS, RICHARD BLAND, Jr., prisoner of war in Japan, 1152
WILLIAMS Foot Preparations, 164—BI WINE, Japanese rice wine (saki), liver cirrhosis from, [Nakahara] 564—ab new law on, also effect on assimilation of vitamins, France, 553
WINTER bronchitis, 568
WIRELESS: See Radio

Council for Scientific and Industrial Research, Australia, 477 Hawaii needs medical supplies Medical and Surgical Relief Committee of America, 467 Japan's economic resources, 546—08

WISCONSIN State Medical Society (Mr. Crownhart executive secretary), 311
WOMAN'S AUXILIARY, Hygria, (contest winners) 1229-OS; (A. M. A. appreciation to) 1463-OS 1405—US meeting on nutrition and defense, Philadelphia, 1151 news of, 468; 546; 654; 742; 827; 1229; 1304, WOMAN'S MEDICAL COLLEGE of Pennsylvania (course in pathology) 311, (course on chemical warfare) 393; (medical genetics lectures) 658 NOMEN. See also Marriage. Maternity, Meno-pause; Menstruation; Pregnancy; etc. available for war industries, 987 business, promote health evaminations, 382 conscription for military service, England, 660 in Medicine See Physicians, women Institute for Women's Professional Relations, WOVEN'S Field Army: See American Society
for Control of Cancer
WOOD, FRANCIS CARTER, (correction) 832
WOOD (Landrum W), memorial clinic, 156
WORDS AND PHRASES. See Terminology,
Medicolegal Abstracts at end of letter M
WORK: See also Industrial Health
calories (number) needed for various type,
1284—ab
capacity of human subjects, aminoacetic acid
(gelatin) falls to increase, [King & others]
*594
muscular, physiology of [March 2017] *594
muscular, physiology of, [Ivy] *569
WORKMEN'S COMPENSATION See also
Medicolegal Abstracts at end of letter M
chiropractors and United States Employees'
Compensation Act, 1478—0S
Council on Industrial Health committee on,
1472—0S
disability cleined for lentenural infections
disability cleined for lentenural infections 1442-US
disability claimed for leptospiral infections
(Well's disease), [Stiles & Sanyer] *35
medical panel system of New York State
[Kallskl] 645-ab, [Bloom] 652-ab, 653 —ab physicians must sign fee bill on, Ohio, 830 WORLD WAR I (1914—1918) battalion medical officer experiences in, [Conn] estimate of men killed in, vs. present war, 542
reduction of juvenile communicable diseases in soldiers and sailors, [Davison] 410—ab tuberculosis problem in, [Pollock] 668—ab whippet tank driver, audiogram of, [Bunch] \$593 *593
*NORLD WAR II (1939--): See also Medicine and the War
A L A. Committee on Aid to Libraties in War Areas, 746; (Rochefeller aids) 1310
blast injuries, 898-E
man power of nations at war, males aged 18-35, 464
men killed in World War I vs, 542
wounds, cerebral, treatment, [Horrav] 753 European Front, 1939— air raid casualties in October, 396 air raid precautions for users of radium, 242, 396 air raid wounds, bacteriology of, [Spooner] air raids and evacuation effect on children, air raids and evacuation effect on children, [Burbury] 755—ab air raids, "crush syndrome" [Maitland] 411—ab; 911; 1311 air raids, London's underground railway as tefuge from, 1235 ambulances, officers, sailors and employees donate to England, 147
American ambulance for wounded airmen electrically heated blankets, 314
American hospital built to withstand air raids, 1311 American physicians for Britain, 1435—08
1311
American physicians for Britain, 1455—08
American physicians in Britain given opportunity to join American forces, 538—E
American Red Cross alds Britain, 1154
Americans in Canadian armed forces, 1305
Australia sends medical aid for Russia, 913
blast Injury of lungs, [O'Reilly] 175—ab
books, thinner; paper rationed, England, 1508
British American Ambulance Corps, 146
British American Ambulance Corps, 146
British Museum wrecked—express gratitude
for American aid, 312
British War Rejief Association of Northern
California, 147
Bundles for Britain, 1375
Canadian air force, immunization, [Sellers]
170—ab
Canadian Army, Americans in 1305 1311 Canadian Army, Americans in 1305
Canadian, army, surveys of chest, [Richards]
1327—ab Canadian orthopedic unit for Scotland, 1234 Casualties, estimate of men killed in present war vs. World War, 542 dyspensia in British Army, [Hinds-Howell] epidemic myositis in men of Royal Air Force after inoculation, [Williams] 1165—ab eye injuries, 1311 food, are synthetic vitamins satisfactory? \$33

WORLD WAR II, Pacific Front—Continued Japanese and illicit oplum traffic: regula-tions for Japanese soldiers, 736—E Japanese burn Kale-in-China Hospital, 986 Japanese close Pelping University College of Medicine, 1455 WORLD WAR II, European Front—Continued food, dietetics: revaluation in terms of war conditions, [Mottram] 411—ab food in case of invasion and heavy bombing, 158
food, milk for school children, England, 63
food, milk rationing, 660
food, milk rationing, 660
food, nutrition in war time: effect of heat
on cabbage, 696—ab
food rationing, France, 474; 475
food rationing, France, 474; 475
food rationing, reduced, England, 1383
food situation; also feeding of young children, England, 395
food supply, new feeding plans for children
and war workers, 313
frostbite, immersion foot, shelter foot,
[Greene] 1257—ab
Gordon (John E) arrival, in U S in charge
of American-Red Cross-Harvard Unit, 58
Harvard American Red Cross hospital unit,
232, 748
leafth conditions in Germany, 1382, 1383,
1507 Japanese close Peiping University College of Medicine, 1455
Japanese kill nurse (Miss Burkwall) and all American missionaries on Hainan, 740
Kahn (Gustav M.) prisoner of war, 1309
man power of nations at war, males aged 18-35, 464
Moorhead (J. J.) honored for service at Onlu, Moorhead (J. J.) honored for service at Onlu, 241

obstetrics in Hawaii, [Schattenburg] *1190
Palestine in wartime, 912, 1509
physicians (first) killed in action: (Drs Rall, Schick, at Pearl Harbor) 316, (Dr. Johnson at Pearl Harbor) 398; (Dr Kysor at Corregidor Island, P. I) 478, 1157
Williams (Richard B) prisoner of war in Japan, 1152
wounds from shrapnels, missiles in bombing of Hawaii, [Cloward] *207
wounds, surgical experience at Pearl Harbor, [Moorhead] *712
WOUNDED See World War
Transport of See Ambulance
WOUNDS: See also Trauma; under specific organs and region
acute traumatic, débridement, suturing and sulfanilamide, [Howes] 551—ab
air raid, recent, bacteriology of, [Spooner]
SS—ab
blast injuries, 898—E health in British Army convalescent depot, 396
health in England, (publicity on droplet infection) 396. (condition of) 242 1383, 1598
heart disease in soldiers, [Hadorn] 1522—ab
hospital, Botkin in Moscow bombed, 1304
hospital collaboration (international) when
war is over, 551
hospital infection of wounds, report by War
Wounds Committee of London 395
hospitals, London, Burvey of, 1154
hospitals, London, survey of, 1154
hospitals, medical staff reduced, 1311
hospitals, Paderewski Hospital opened, Edinburgh, 61 air raid, recent, bacteriology or, [Spooner] 88—ab blast injuries, 898—E closed, misuse of sulfonamide compounds in, [Taylor] *939; [Ferguson] 1514—C healing, delayed, mechanism of, vs hypopro tememia; role of acacla and vitamin C, [Rhoads & others] *21 healing, temperature effect on, [Brooks] 844—ab, (cold) [Sano] 1409—ab infection (cross), mechanism of, [Willits] 922—ab infection in hospital, prevention, 395 Nonpenetrating. See Abdomen phargedena, [Callam] 1257—ab surgical, sulfanilamide therapy in, [Veal] 847—ab treatment, orr method for, [Orr] 917—C treatment, sulfanilamide locally, [Harbison] 1007—ab treatment, sulfanilamide locally, [Bick] *511 West See Woold War II burgh, 61 immunizations for, 420 industrial hazard of trinitrotoluene, [Roberts] industrial hazard of trinitrotoluene, [Roberts]
755—ab
Industrial workers, medical supervision by
B. M. A Committee, 660
Industrial working hours, etc., British observations on, [1xj] *572
malaria in soldiers, treatment issued by British War Office, 747
man power of nations at war, males aged
18-33, 464
mass psychology Trotter's theory (1916) of
heid instinct applied to Germany, 62
Medical History of the War, 1234
medical students and, 911
motor cyclists should wear crash helmet to
prevent head injury, 313
might blindness and mental disorders in soldiers, [Witthower] 489—ab; 563—ab
nurserles for children of war workers, 474;
1312
Stephyloget, Trotter
Stephyloget, Trotter
Stephyloget, Trotter
1812
Stephyloget, Trotter
1812
Stephyloget, Trotter
1813
Stephyloget, Trotter
1814
Stephyloget, Trotter
1814
Stephyloget, Trotter
1814
Stephyloget, Trotter
1814
Stephyloget, Trotter
1814
Stephyloget, Trotter
1814
Stephyloget, Trotter
1814
Stephyloget, Trotter
1815
Stephyloget, Trotter
1815
Stephyloget, Trotter
1815
Stephyloget, Trotter
1816
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1818
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1817
Stephyloget, Trotter
1818
Stephyloget, Trotter
1817
Stephyloget, Trotter
1818
Stephyloget, Trotter
1818
Stephyloget, Trotter
1818
Stephyloget, Trotter
1818
Stephyloget, Trotter
1818
Stephyloget, Trotter
1818
Stephyloget, Trotter
1818
Stephylo 1007—ab treatment, sulfonamide locally, [Bick] *511 War See World War II wounding mechanism of high velocity missiles, [Black] 1416—ab WRIGHT stain for blood films, 936 WRIGHT stain for blood films, 936 WRIST, care of, to prevent arthritic deformity,
[Joplin & Baer] *939
WRYNECK See Torticollis 1312
Nutrition See subhead: Food otolaryngologist in the war, 1154 physicians (alien), temporary concession to England, 474, 660 physicians (British), medical war relief fund XANTHOMA, solitary, of bone, [Puhl] 1418—ab XANTHOMATOSIS, hereditary, [Bloom] 1329 —ab BAZIN physicians (British), medical war rener lund for, 552 physicians (British women) in air force, 1508 Polish medical faculty at University of Edin-burgh, 313, (graduates) 659 Polish professors, honor memory of those murdered, 748 prisoners, International Red Cross conference on treatment of, 911 radium buried 50 feet below ground; use of teleradium, 242, 396 recruits, extend age for military service, En-X-BAZIN, 163—BI XERODERMA pigmentosum caused by sunlight, (Lampel 326—ab X-RAYS See Roentgen Rays 163-BI YALE UNIVERSITY (on 12 month basis) 334

—SS, (Donnelley scholarship fund) 334

—SS; (undergraduates on hospital duty)
764—SS; (Japanese burn Yale-in-China)
986; (Clinic of Child Development) 1230

YEAST in nutritional macrocytic hyperchromic anemia, [Moorel 1161—ab
effect of adenylic acid on malnourished, [Vilter] 1410—ab recruits, extend age for military service, England, 660 rehabilitation of injured, England, 1154 rehabilitation of injured, England, 1154 rheumatic disorders in soldiers, [Heinemann] 1522—ab Royal College of Surgeons (museum destroyed) 158, 312, (form new pathologic war collection) 747 Russia, medical aid for, 541, 747, 987 Russian doctors use American Methods, 1382 soldiers in armor, 833 stores for Russia, 987 [Therequiest, (mulmonary) in services [Asnin] effect of auctions tell 1410—ab YELLOW FEYER, etfology, pathology; blood YELLOW FEYER, etfology, pathology; blood chemistry; clinical picture, [Soper] *371 first recognized account by Perc Jean Bap-tiste in 1648, 283—ab immunization for all army personnel, 737 immunization, scrum; also virus 17D, [Soper] *377
situation, Brazil, 159
surveys, 1357—ab
transmitting mosquitoes in Paraguay, 718
treatment, [Soper] *377
vaccine, 1,938,300 doves distributed by Rocke
feller Foundation, 1310
YOUNG, HUGH, to retire, 1308
YOUNG, RALPH, Dutch East Indies herb
preparations, 164—BI
YOUTH: See also Adolescence, National Youth
Administration
Work Defense Program: report on youth
health program, 1153 tuberculosis (pulmonary) in services, [Aspin] 563-ab typhoid outbreak traced to carrier, England, typhus ravaging large part of Europe, 1312 wartime prescribing National War Formuwartime prescribing lary, 551 women conscripted for service, England, 660 Wound See also subhead Air raids, Eye in-Wound committee of the Council, London, 395 wounds, present treatment, [Gordon-Taylor] 1414—ab wounds, statistics as basis for care in St Louis program, 1455 ZINC gelatin paste, Cruricast Bandage, 156
Insulin. See Insulin
Peroxide Medicinal, N.N.R., 897, (Mallin
chrodit; Merch, 897
Peroxide Tratment: See Amputation, Fractures, Gangrene, gas
poisoning, [Gocher] 1012—ab
ZONDEK-Aschhelm Test, See Aschhelm-Zondek
Test Pacific Front, 1941— American Red Cross service clubs for Australia, 1204 trana, 1204
China, medical aid for, 60, 61, 542, 1506
civilian cooperation at Honolulu and Pearl
Harbor, use of blood plasma and sulfanilamide, 465 Test Tour Frohlich's Z'Out Hair Destroyer, 164-Bl Z-RIN Products Co., 218-Bl ZYTOR, synthetic, suture material, [Narat] 488-ab amide, 465 Council for Scientific and Industrial Research,

# AUTHOR INDEX

In this Index are the names of the authors of articles which have appeared in The Journal, the names of those who have read papers before Societies as published in The Journal and those whose articles have been abstracted in the Current Medical Literature Department. The * preceding the page reference indicates that the article appeared in full in The Journal. For subject index see page 1529.

A Another, J. 1930
Ahel, A. R. 1011
Abramson, L. 930
Ackerman, W. G. 1330
Adams, R. 84, *111, *1234
Adler, E. L. 1254
Adler, E. L. 1254
Adler, E. L. 1254
Adler, E. L. 1254
Adler, E. J. 166
Ajamil, L. F., 1166
Ajamil, L. F., 1166
Aidridge, A. G. V. 755
Alesen, L. A. 1010
Alicandri, H., *1214
Allan, F. N., *373
Allen, I. S. 31
Allen, J. B., 406
Allen, J. H., *694
Allen, R. B., 646
Allen, J. H., *694
Allen, T. D., 1339
Anderson, B. E. J. 1377
Altschule, M. D., 1317
Anterson, G. C. 754
Anderson, B. C. L. 188, 1416
Andrews, G. C. 754
Andreves, C. H., 88, 1416
Andrews, G. C. 754
Angrist, A. 253, 1248
Antoni, N. 929
Antopol, W. 559
Anzal, H., \$51, 851
Antoni, N. 929
Antopol, W. 559
Anzal, H., \$51, 851
Applebaum, I., 559
Arce Larreta, J. 674
Arenas, N., 1417
Argudin Garcia, A., 1260
Arlas, L. J., *1209
Arlah, G. 166
Armett, J. H. 1406
Armett, J. H. 1406
Armett, J. H. 1406
Armett, J. H. 1406
Armett, J. H. 1406
Armett, J. H. 1406
Armett, J. H. 1406
Armett, J. H. 1406
Baec, C. J., *837
Baec, S. 248, *4101
Baen, W. R. 1875
Baec, S. 248, *41101
Baen, W. R. 834
Ballen, C. C. 486
Baer, S. 248, *4161
Baer, W. H. 254
Baller, C. C. *805
Baer, C. J., *837
Baer, S. 248, *4161
Barler, D. W. 755
Baldwin, H. S. *451
Ballim, R. B., 843
Ballenger, E. G. 998
Balocci, L. H., 470
Barres, A. P. *421
Barker, M. M., 1244
Barker, N. W., 1003
Barron, E. S. G., 1523
Barron, E. S. G., 1523
Barron, E. S. G., 1523
Barron, R. E. S. G., 1523
Barron, R. E. S. G., 1523
Barron, R. E. S. G., 1524
Barren, M. W., 1014
Bean, W. R., 1176, 1410
Bean, W. R., 1176, 1410
Bean, W. R., 1176, 1410
Bean, W. R., 1176, 1410
Bean, W. R., 1176, 1410
Bean, W. R., 1176, 1410
Bean, W. R., 1176, 1410
Bean, W. R., 1176, 1410
Bean, W. R., 1176, 1410
Bean, W. R., 1171
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A., 169, 1011
Beline, C. A.

Cadden, J F, 1326
Callam, A, 1257
Calvin, J K, 841
Campbell, P A, 1330
Campbell, P A, 1330
Campbell, W C, 171
Cafizares, O, 81
Cannon, A B, *122
Cantero, A, 1415
Cantor, M M, 403
Cares B W, 83
Carpenter, C C, *226
Carpenter, R C, 405
Cavalla da Silva A, 412
Carvalho Ferreira, J, 1335
Casals, J, 255
Casiello, A 849
Caso, R, 1258
Castle W B, 1005
Castleman B, 167, 921
de Castro, C, 176
Castrodale, D, 1003, *1278
Cliamberlain, F L, *779, 921
Chamberlin, G W, 1249
Chamorro-R Sallmas, R, 177
Chandlee B H, 846
Chant, H L, 1013
Chapin, J M, *697
Cliapman, E M, 173
Chapman, E M, 173
Charlin, C, 921
Chase H F, 1317
Chase H F, 1317
Chashs, H, 324
Chasnoff, J, *899
Chu, F, T, 176
Climenko, D R, 484
Cloward, R B, *267
Coates, G M, 1013
Coffe), W L, Jr, 1161
Cohen, S, *862
Cohn, A, 1254
Cohn, A, 1254
Cohn, A, 1254
Cohn, A, 1254
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Collins, C G, 1411
Col

Daly, M. M. I., *1433
Darnall, J. R., *901
Dattner, B., 1249
Dauber, D., 1253
Daughertt, J. A., 1013
Davenport, L. F., *111
Davidson, H. S., 1012
Davidson, M. T., 1519
Davie, T. B., 755
Davies, H. M., 1521
Davies, R. M., 489
Davies-Colley, R., 88
Davis, A. C., 925
Davis, B. L., Jr., *1182

Davis, E, 467
Davis, G, E, 86
Davison, M, 1413
Davison, S, *137
Davison, W C, 410
Dawson, E K, 848
Day, G W, 1332
Dean, A L, *106
Deaver, J M, 1331
Decring, W, *171
deolong, H, *702
DcJong, R N, 484
Dckkers, H J N, 90
Dclmanto, A, 1016
Dennie, C C, *613
Derouaux, G, 1166
Der Sanctis, A G, *1445
de Takats, G., *501, (correction), \$32, 1104
DeVaughn, N M, *1199
Devar, D C, 410
Diamond, S, *771
Dick, G F, *38, 664
Dickson, R C, 1015
Dieckoss A, 413
Dickendorf R O, *210
Dill, L V, 1326
Dingemanse, E, 323
Dingle, J H, 1331, 1415
Dixon, F W, 173
Doan C A, 1243
Dockerty, M B, 1329
Dodd, K, 252
Dolle W, 850
Dommi, A H, 1250
Domahue, D D, *579
Dorr, E M, 171
Dósa A, 412
Douglas, B H, 484, 668
Downle, A W, 1015
Downing, J G, *613
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs, T M, 1328
Downs,

Eagle, H, 323
Earle, K V, 1165
Eaton, M D 324
Ebbs, J H, 255, 1251
Ebert, R V, 324
Ebbardt K, 1260
Ecker, E, E, *1290
Eckhoff, N L, 88
Edmonds, H W, 844
Edsall D L, (correction)
394
Edwards, F R, 1521
Edwards, J C, 1410
Edwards, J C, 1410
Edwards, J C, 1410
Edwards, T I, *585
Lisele, C W, *38, 664
Elman R, *1267
English, B C, 169
English W H, 1332
Enzer N, 168
Epps, C H, 1520
Epstein, N N, 485
Erich J B, 404
Escamilla, R F, 1253
Escarza, F, 1418
Ewans, R W, 848

Fairhall L T, 319
Falk, A B, *1308
Falks, F H, *204
Fan, C, 176
Fang, L Y, *1358
Farbman, A A 168
Farrell, J, I, *711
Farrow, J H, *339
Fauteux, M, 170
Fca*by W R, 489

Feemster, R F., 1011
Feen, B. G, *495
Felderman, L, 81
Feldman, F., *974
Felderman, J. B, 667
Felderman, J. B, 667
Felderman, J. B, 667
Felderman, J. B, 667
Felderman, J. B, 667
Felderman, J. B, 667
Felderman, C F, 1250
Ferguson, C F, 1250
Ferguson, L K, 1514
Fernandes Pontes, J, 112
Ferraris, A A, 1259
Filedd, H, Jr., 842
Findlay, G M, 1167
Fine, J, 253, *1190
Finland, M, 79, 1415
Fiorio, C, 928
Fisher, J K, *122
Fisher, J K, *122
Fisher, J K, *122
Fisher, J K, *125
Fisher, J K, *125
Fisher, J K, *125
Fisher, G, M, *604
Fitz-Hugh, T, Jr, 251
Flaxman, N, 484
Fitcher, E, 252
Fichcher, R, 998
Filegelman, M T, *21
Filmn, R, H, 82
Filipplu, H, F, 559, 1250
Flynn, G, T, 1411
Foerster, H, *613
Folk, O, H, *1223
Folsom, T G, 1236
Forster, B, 842, 1407
Fouts, P J, 1002
Fouter, W, M, *421
Fox, E C, 408
Fox, H J, 1005
Frank, H, A, *1192
Franser, R, 1165
Freed, S, C, 1403
Freedberg, A, S, 167, 167
Freedberg, A, S, 167
Freedman, M, R, 1256
Freedberg, S, 480
Friderichsen, C, 1336
Fried, C, 929
Frieddberg, R, 676
Friedman, M, H, *507
Friedman, M, F, 163
Frisch, A, W, 1006, 1162
Fuentes, A, 849
Fulton, F, 1257
Fulton, W, B, 82
Furst, W, 559
Furrulyelm, L, 178

Gajardo Tobar, R., 1259
Gale, G. W., 411
Galvin, W. H., 1012
Ganz, R. N., 1250
Gardiner, L. U., 642
Garcau, U. J., 1251
Garland, L. H., 1328
Garrahan, J. P., 673
Geckeler, G. D., 309
Gelger, C. J., 496
Gerstion-Cohen, J., 1249
Gilbbs, F. A., *216
Gilbesple, N. A., *787
Gilmour, J. R., 175
Gilsanz, V., 928
Gispen, R., 414
Glenn, F. St.
Glenn, A. T., 1017
Glore, R. E., 88
Gloyne, S. R., 175
Gnassi, A. M., *862
Gocher, T. E. P., 1012
Goenawan, R., 326
Goldberg, F. A., 169
Goldberg, H., *291
Goldbloom, A. A., 486
Goldburgh, H. L., *1051
Goldcen, B. J., 404
Goldbergh, H. L., *1051
Goldcen, B. J., 404
Goldbrigh, H. L., *4051
Goldcen, B. J., 405
Goldbrigh, H. L., *4051
Goldcen, B. J., 406
Goldbrigh, H. L., *4051
Goldcen, B. J., 406
Goldbrigh, H. L., *4051
Goldcen, B. J., 406
Goldbrigh, H. L., *485
Gordon, E. S., 1002
Gordon, W., 1013
Gordon-Taylor, G., 1414
Gottesman, J., *297

Goulder, N. E, 1517
Govea Peña, J. 1418
Grace, J. D., 1406
Graham, E. A, 924
Graham, E. A, 924
Graham, S. 1416
Gray, H. K. 170
Gray, S. 1323
Green, C. A, 175
Green, M. *1445
Green, M. *1445
Green, M. *1445
Greenbaum, J, *434
Greenbaum, J, *434
Greenbaum, J, *573
Greene, R. 1257
Greene, R. R. 171, 561
Greenwild, L. 486, *97
Greenwood, A. 486
Greenwood, A. 486
Greens, F. J, 1014
Griffith, J. Q. Jr. 483
Griffith, J. Q. Jr. 483
Griffith, J. 245
Grodinsky, M. 1164
Grott, J. W., 257
Grove, W. E, 172
Guenther, V. G, 1245
Guerra, P. 849
Guy, R. A, 1158
Guznán, 1259
Gyárfas, K. 927 **★975** 

Hollander, L, 1406
Holleb, H, B, 1248
Holm, B, 924
Holmes, W, J, 1008
Holmeren, H, 258
Hoobler, S, W, 842
Horányi-Hechst, B, 927
Horeyseck, L, 675
Horrax, G, 753
Horsfall, F, L, Jr, 255, 561
Hotz, H, W, 928
Howard, R, M, 1520
Howes, E, 651
Howes, H, A, 486
Howes, W, E, 1327
Hoyne, A, L, 924
Hrdlička, A, 918
Hubbard, R, 918
Hubbard, R, 403
Hubble, D, 927
Hudrck, S, 5, 171
Hudson, N, P, 88
Humder, L, K, 1412
Hunter, W, C, 1405
Hurteau, E, F, 1251
Hussey, H, H, 1325
Hutchinson, J, 1416
Hydel, G, A, 1011

Ingham, J, \$48 Ingram, F R, 410 Isager, K, 414 Isbell, H, *1199 Isenhour, C E, 1326 Ishmael, W K, 923 Iy, A C, *569, 1402 Izakı, N, 414

Kile, R. J., 1406
Killian, S. T., 841
Kimmel, G. C., 1247
King, E. Q., *594
King, J. D., 1413
Kingsland, M. F., 1517
Kinsella, R. A., 1006
Kirshbaum, J. D., 671
Kirsner, J. B., *517, 1402
Kitaghau, Y., 89, 89
Klendshoj, N. C., *528
Klepser, R. G., 847
Klestadt, W. D., 998
Kilnefelter, H. F., 1005
Klumpp, T. G., *594
Knauer, C. H., 1518
Knott, E. M., 84
Kochaklan, C. D., 845
Kolno, J., 226
Kolmo, J. A., 83
Koofista, H. P., 1163
Korenchevsky, V., 1333
Kornegay, R. D., *30'
Kotz, J., 172
kowallis, G. F., 1250
Kramer, B., 487
Kreutzmann, H. A. R., 407
Kronenberg, M. H., 648
Kulsen, F. H., *859
Kuehn, A. O., *1296
Kuntscher, G., 675
Kugel, V. H., 251
Kugelmass, I. N., 1389
Kuhn, H. S., *610
Kurten, L. J., 1245
Kvser, F. A., *608

MCAlebryde, C. M. 1033, *1278
McCaleb, L. B. *5574
McClellan, W. S. 560
McClellan, W. S. 560
McClellan, W. S. 560
McClellan, D. 485
McCaleb, L. B. *5474
McClellan, D. 485
McCaleb, L. B. *5474
McClellan, D. 485
McCaleb, L. B. *5474
McClellan, D. 485
McCaleb, L. B. *5474
McClellan, D. 485
McCaleb, L. J. *4334
McClellan, D. 485
McCaleb, L. J. *4334
McClellan, D. 485
McCollan, D. 4

Peers, J. H., 485
Pemberton, J. de J., 1250
Pendergrass, E. P., 483, 488
Penton, C., 1333
Pereira Gomes, J., 849
Perkins, J. E., 256
Perlow, S., 1253
Perlzweig, W. A., *28
Pernokis, E. W., *865
Perrin, T. L., *973
Peskin, H., *1214
Peters, B. J., *183
Peters, E. E., 1250
Peterson, D. B., *129
Pfaff, R. O., 669
Phalen, G. S., *859
Phillips, R. B., 409, *1042
Pillsbury, D. M., \$42
Pinkerton, H., *885
Pires de Campos, A., 1016
Plotke, F., *964
Poch, J. M., 1258
Poer, D. H., *11
Pohl, J. F., *1428
Pohle, F. J., 1003
Poindexter, C. A., 1325
Polayes, S. H., *1050
Polderman, H., 845
Pollock, W. C., 668
Pool, J. L., 1413
Poppe, J. K., 1007
Popper, H., 160
Post, J., 1251
Poth, D. O., 1330
Powell, W. F., *973
Power, M. H., 1404
Powers, J. H., *600
Preioni, C., 490
Preston, F. W., 406
Price, A. H., 844
Price, P., *862
Prickman, L., E., *859
Prince, C. L., 1010
Prinzmetal, M., *44
Priovince, W. D., *1034
Pugh, I., 1333
Puhl, H., 1418
Pulaski, E. J., 846
Purcell, F. H., 667
Purves, E. R., 1158
Putnam, T. J., (correction)
304
Quattrin, N., 1235

Quattrin, N., 1335 Quick, A. J., 999 Quick, E. D. (correction) 157

R
Raaschou, F, 258
Rabasa, E, 1418
Rafshy, H A, *5
Rajka, E, 412
Ramon, G., 1334
Rantz, L A, *1268
Rappaport, I, *1179
Rattner, H, 1252, *1368
Ravdin, I S, 844
Ravenel, B, O., 1014
Rawls, W, B, 754
Rea, C E, 1007
Recroft, E, W., *1296
Redish, J, 324
Reed, G B, 1415, 1415
Reeves, G., *1447
Refinetti, P, 1016
Refamery, R, 1166
Reh, T., 1335
Rehfuss, M, E, 403
Reich, C, *1200
Reichert, F, L, *294
Reilly, E T, *1433
Rein, C R, 669
Reinet, E, 1326
Reinhold, J G, 1250
Reinstein, H, 486
dos Rels, J, B., 756
Rhoads, C P, 88
Rhoads, J E, *21, 751
Ribeiro, R, 1336
Richards, R, K, 1517
Richards, R, K, 1517
Richards, R, K, 1517
Richards, R, K, 1517
Richards, R, K, 1517
Richards, R, K, 1517
Richards, E, R, 255, 561
Rigler, L G, 325
Robacki, R, 675

263-- 338

Roberts, H. M., 755
Robertson, T. D., 1405
Robinson, G. W., Jr., 323
Robinson, H. J., 1255
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 408
Robinson, H. M., 4108
Robinson, H. M., 4108
Robinson, H. M., 4108

Saltzstein, H C, 168
Sandweiss, D J, 168
Sanford, H N, *697
Sanmartino, E S, 849
Sano, M. E. 1409
Sante, L R, 483
Santillan, J, 85
Saphir, O 1255
Saphir, W, *964
Sarett, H P, *28
Saslaw S, 1243
Sato, N, 258
Sauer, L W *1271
Sawyer, W A, *34, 641
Schaffer, R L, 667
Schaffer, R L, 667
Schaffer, N K, 1326
Schattenburg, O L, *1190
Schatzki R, 252
Scheilling V, 1161
Scherer, H, 673
Schiffin, A 1329
Schiller, W, 843
Schlegel, B, 413
Schlotzk, F W, 84
Scholzke, K H, 929
Schramm, G, 413
Schrank, A, 850
Schrank, A, 850
Schrank, A, 850
Schrank, H, *455
Schröder, C H, 1418
Schlotzke, K H, 929
Schramm, G, 413
Schwab, J, 1243
Schwab, J, 1243
Schwab, J, 1243
Schwab, J, 1243
Schwab, J, 1243
Schwatz, Leon, 559
Schocder, H, 177
Schuberth A, 1417
Schuberth A, 1417
Schuberth A, 1417
Schuberth A, 1417
Schwatz, Leon, 559
Schwatz, Jouns, 85
Schwatz, Jouns, 85
Schwatz, J, 1006
Schwarzenberg L, J, 1166
Scott, W A, 255
Scalock, R R, 845
Scarcy, H B, 1237
Scarles, P W, *117
Scarles, P W, *117
Scarles, P W, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117
Scarles, P M, *117

Sullivan, J. C., 1325 Sullivan, J. M., *1443 Sulzberger, M., *613 Swain, R. H. A., 411 Swanson, L. W., *364 Sydenstricker, V. P., *1199

Talbott, J H, 921
Tannenbaum, A. J., *372
Tannenbaum, A. J., *372
Tannenbaum, A. J., *372
Tannenbaum, A. J., *372
Tannenbaum, A. J., *372
Tannenbaum, A. J., *372
Tanlenbaum, A. J., *372
Taplen, P A, 1522
Taussig, F J, 845
Taylor, F H L, 79
Taylor, F H L, 79
Taylor, J B, 1517
Taylor, J D, 1257
Taylor, R D, 1244
Te Linde, R W, *1341
Temple, H M, *106
Terzlan, L A, *1284
Thaddica, S, 673, 1016
Thalbimer, W, *370
Thayer, J D, 1249
Theis, F \ 1256
Thomas, L W, 1249
Theis, F \ 1256
Thomas, L W, 1249
Thomas, J C, 1416
Thomas, M E, 1244
Thompson, G G, 87
Thompson, S A, *1364
Thompson, S A, *1364
Thompson, W O, 479
Thorn, G W, *214
Tiloragood, E, *344
Tiffin J, 651
Tisdall, F F, 255 1251
Tocantins, L W, 844
Tompsett, R R, 1010
Toomes, J A, 1005
Topley, E, 927
Topping, N H, 174
Toro Villa, G., 929
Touriel, E L, 1010
Touroff A S W, *890
Trachtenberg, H B, *1284
Tracett, G I, 170
Tubbs, O S, 411
Tural, I, 675
Turell, R, *977
Turner, O A, 1256
Twombly, G H., *106
Tyslowitz, R, 323

Speert, H, 66
Splegl, E D, 167, 167
Splelholz, J B *975
Sples, T D, 1161, *1176.

1410
Spliman, F, *28
Spink, W W, 1244
Splizer, H, 852
Spooner, E T C 88, 926
Sprague, H B, 1330
Sprouse I, 1256
Squillace, J A, *1050
Stahler, B, 563
Stanker, R, 563
Stanker, R, 563
Stanker, R, 563
Start, A, *1192
Stead, E A, Jr, 324
Steer, A, 1254
Steigmann, F, 1413
Stein J, J, 1252
Stein M H, 1407
Steinberg, S S, 1327
Steinltz, F S, 1236
Steinltz, F S, 1236
Steinltz, F S, 1236
Steinltz, F S, 1236
Steinltz, F S, 1236
Steinltz, F S, 1236
Steinltz, F S, 1236
Steinltz, F S, 1236
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
Steinltz, F S, 1327
St V
Vaccarezza, R F, 1335
Valle Q, E, 1166
van Creveld, S 1405
van den Ende M, 1416
van der Schaar, P J 852
van Ebbenhorst Tengbergen,
J, 90
Van Gelder, D W, 251
Van Liere, E J, 252
Van Loon, E L, *771
van Veeteren A, 676
van Rooyen, C E, 925
van Slyke, C J, 1249
Vant J R, 403
Vanzant, B T, *875
Vars, H M, 844
Vasconcelos, R, 673
Vaughn, A M, *1293
Vazquez Vega, L G, 177
Veal, J R, 847
Vesell, H, *890
Vest, S A, 1010
Villaverde, W, 1418
Villela, E, 1259
Vilter, R, 1161, 1410
Vogel, H R, 1406
Vogel, P, 843
von Oettingen, W F, *579

Wampler, F. J., 647
Ward, J. W., 1325
Ward, R., 1009, 1164
Warkany, J., 1002
Warren, K., 1161
Watkins, C. H., 921, 1005
Webster, B., 254, 1010
Webster, S. H., 86
Weed, J. C., 1411
Weinberg, H., 1233
Weingarten, M., *5
Weinstein, B. B., 1111
Weinsteln, S., 1330
Weiss, A. M., *4433
Weiss, R. S., 669
Weiss, R. S., 669
Weiss, R. S., 669
Weiss, R. S., 669
Weiss, R. S., 669
Weiss, T. E., 408
Weich, C. S., 409
Weicker, E. R., 1226
Weilam, W. C., *197, *198
Weiler, C. V., 1248
Weils, A. Q., 1257
Weils, M. W., 1326
Weils, M. W., 1326
Weils, W. F., 1326
Weils, W. F., 1326
Weils, W. F., 1326
Weils, W. F., 1326
Weils, M. W., 1330
Whitaere, F. E., *1358
White, B. V., *136
White, P. D., 167, *270, 9
1389
White, P. D., 167, *270, 9
1389
Williams, D., 1165
Williams, D., 1165
Williams, D., 1165
Williams, G. E. O., 755
Williams, G. E. O., 755
Williams, G. E. O., 755
Williams, G. E. O., 755
Williams, G. E. O., 755
Williams, G. E., 755
Wil

Yaffe, I. 485 Yamasaki, E., 851 Yafiez, 1279 Yogo, G., 851 Yoh, T., 89 Yoneda, S., 414 Youkman, F. F., 1317 Young, R. H., *711 Yudkin, S., 1521

z Zegarelll, E V, 81
Zeisler, E B. (corre312
Zichis, J. 1214
Zichis, E, 673
Zishin, D E, 81
Zondek, B. *707
Zuckerman, S. 1416

INDEX TO PAGES

Riven, S S, 675 Robacki, R, 675	Shapiro, S, 222	INDEX TO	PAGES ISSUES -VOLUME 118.	JANUARY-APRIL. 1942
Pages No.	Date Pages an. 3 339 an 10 421 an. 17 495 an. 17 569	No Date  120 5 Jan 31 194 6 Feb. 7 1668 7 Feb 14	Pages No D.  683— 770 9 Feb  771— 838 10 . March  859— 936 11 . March	29 1027—1170 13 Mail 29 1171—1264 14 April 7 1265—1310 15 April 14 1211—1422 17 April 14 1211—1422 17 April